

Reprinted 8/30/66

# Simpson

## STOCK PANEL METERS

OVER 1325 STOCK  
SIZES AND TYPES



*The Original Wide-Vue design  
by Simpson*



**SIMPSON ELECTRIC COMPANY**

5200 WEST KINZIE STREET, CHICAGO, ILLINOIS 60644 • AREA CODE 312, 379-1121

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# 1½", 2½", 3½", 4½", 8" WIDE-VUE PANEL METERS

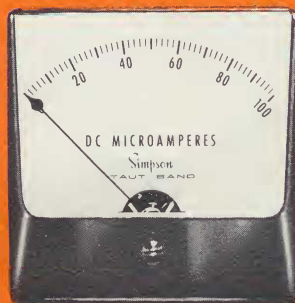
## CASE STYLES



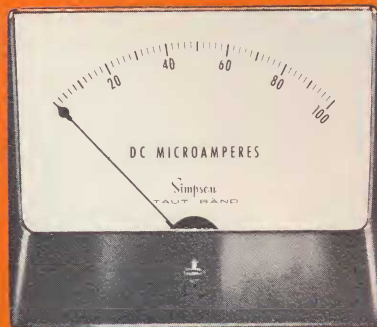
1½" Models



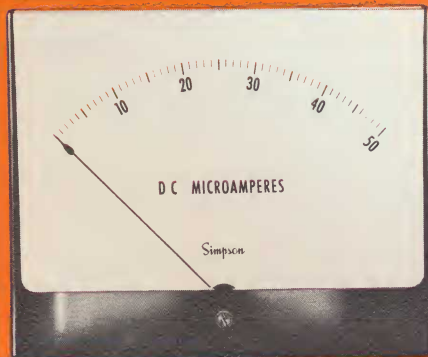
2½" Models



3½" Models



4½" Models



8" Models

## STOCK PANEL METER RANGES AND PRICES

CALIBRATION AND DIALS—All DC Wide-Vue meters listed below have the Simpson self-shielded movement (Calibration not affected by stray magnetic fields or magnetic mounting). All AC Wide-Vue meters have the Simpson Iron-vane type movement. AC Milliammeters and Ammeters are calibrated for use on 25 through 800 cps. All AC Voltmeters are calibrated for use on 25 through 125 cps. Calibration at frequencies up to 800 cps can be made. Contact your local Distributor for prices.

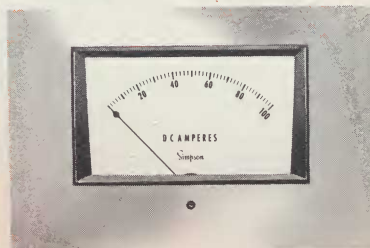
APPROX. RANGE RESISTANCE (ohms)		1½" CASE STYLE CAT. NO. PRICE		2½" CASE STYLE CAT. NO. PRICE		3½" CASE STYLE CAT. NO. PRICE		4½" CASE STYLE CAT. NO. PRICE	
DC VOLTMETERS Self Shielding Meter Movement		MODEL 1212		MODEL 1227		MODEL 1327		MODEL 1329	
0-5	1000 ohms per volt	9540	\$14.10	9550	\$15.30	9720	\$15.75	9870	\$17.40
0-8		Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>	9730	15.75	9880	17.40
0-10		9541	14.10	9560	15.30	9740	15.75	9890	17.40
0-15		9542	14.10	9570	15.30	9750	15.75	9900	17.40
0-25		9543	14.10	9580	15.30	9760	15.75	9910	17.40
0-30		9544	14.10	9590	15.30	9770	15.75	9920	17.40
0-50		9545	14.10	9600	15.30	9780	15.75	9930	17.40
0-100		9546	14.10	9610	15.30	9790	15.75	9940	17.40
0-150		9547	14.10	9620	15.30	9800	15.75	9950	17.40
0-200		Note <sup>1</sup>	Note <sup>1</sup>	9622	15.30	9810	15.75	9960	17.40
0-250	Note <sup>1</sup>	Note <sup>1</sup>	9623	15.30	9820	15.75	9970	17.40	
0-300	Note <sup>1</sup>	Note <sup>1</sup>	9630	15.30	9830	15.75	9980	17.40	
0-300	2000 ohms per volt	9548	14.10	Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>
0-500		9549*	17.70	9640	15.75	9840	16.50	9990	17.85
0-750		Note <sup>1</sup>	Note <sup>1</sup>	9650*	19.35	9850	16.50	10000	17.85
0-1000		Note <sup>1</sup>	Note <sup>1</sup>	9660*	19.65	9860*	20.55	10010*	21.90
DC AMMETERS Self Shielding Meter Movement		MODEL 1212		MODEL 1227		MODEL 1327		MODEL 1329	
0-1	.050	2431	\$14.10	2440	\$14.55	2640	\$15.30	2820	\$16.50
0-1.5	.033	Note <sup>1</sup>	Note <sup>1</sup>	2450	14.55	2650	15.30	2830	16.50
0-2	.025	2432	14.10	2460	14.55	2660	15.30	2840	16.50
0-3	.0166	2433	14.10	2470	14.55	2670	15.30	2850	16.50
0-5	.010	2434	14.10	2480	14.55	2680	15.30	2860	16.50
0-10	.005	2435	14.10	2490	14.55	2690	15.30	2870	16.50
0-15	.0033	2436†	14.10	2500	14.55	2700	15.30	2880	16.50
0-25	.0020	2437	14.10	2510	14.55	2710	15.30	2890	16.50
0-30	.0017	Note <sup>1</sup>	Note <sup>1</sup>	2520	14.55	2720	15.30	2900	16.50
0-50	.001	2438†	14.10	2530	14.55	2730†	15.30	2910†	16.50
0-100	10.0	Note <sup>1</sup>	Note <sup>1</sup>	2540†	14.55	2740†	15.30	2920†	16.50
0-150	10.0	Note <sup>1</sup>	Note <sup>1</sup>	2550	14.55	2750†	15.30	2930†	16.50
0-200	10.0	Note <sup>1</sup>	Note <sup>1</sup>	2552†	14.55	2760†	15.30	2940†	16.50
0-300	10.0	Note <sup>1</sup>	Note <sup>1</sup>	2554†	14.55	2770†	15.30	2950†	16.50
0-500	10.0	Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>	2780†	15.30	2960†	16.50
15-0-15	.0033	Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>	2790	16.05	Note <sup>1</sup>	Note <sup>1</sup>
30-0-30	.0017	Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>	2800	16.05	Note <sup>1</sup>	Note <sup>1</sup>
50-0-50	.001	Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>	2810	16.05	Note <sup>1</sup>	Note <sup>1</sup>

Note<sup>1</sup> Not normally carried in stock. Distributor delivery 2-3 weeks. Prices on request.

\*External Multipliers, Model 183, are furnished on 1½" DC meters 500 volts or higher; on 2½" DC meters 750 volts or higher; and on 3½" and 4½" DC meters 1000 volts or higher. All others are self-contained.

†1½" DC Ammeters are self-contained through 10 amps. 15 amps and higher are supplied as 50 MV meters to be used with external shunts. 2½", 3½" and 4½" DC ammeters are self-contained through 50 amps. Higher range DC ammeters are 50 MV meters to be used with external shunts. Shunt listings are on page 17.

## NEW 3½" and 4½" BEHIND PANEL BEZELS



### NEW 3½" and 4½" WIDE VUE BEHIND THE PANEL MOUNTING BEZEL KITS

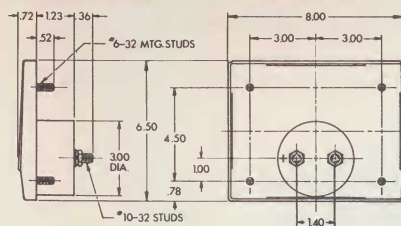
Modern, streamlined appearance, interchangeable with most popular recess and flush mount types. See pages 16 and 17 for complete specifications.



# SPECIFICATIONS

SIZE	MODEL NO.	ACCURACY	SCALE LENGTH
1½"	1212T	± 2% of full scale	1.5" (38.1 mm)
	1214	± 3% F. S. @ 25° C. & 60 cy. Sine Wave	
2½"	1227T, 1257	± 2% of full scale	2.5" (63.8 mm)
	1247	± 3% F. S. @ 25° C. & 60 cy. Sine Wave	
3½"	1327T, 1337, 1357	± 2% of full scale	3.14" (79.7 mm)
	1347	± 3% F. S. @ 25° C. & 60 cy. Sine Wave	
4½"	1329T, 1339, 1359	± 2% of full scale	3.93" (100 mm)
	1349	± 3% F. S. @ 25° C. & 60 cy. Sine Wave	
8"	728T	± 2% of full scale	6.9" (174.2 mm)

RANGE	RESISTANCE (ohms)	1½" CASE STYLE CAT. NO. PRICE	2½" CASE STYLE CAT. NO. PRICE	3½" CASE STYLE CAT. NO. PRICE	4½" CASE STYLE CAT. NO. PRICE
<b>DC MILLIAMMETERS</b> Self Shielding Meter Movement		<b>MODEL 1212</b>	<b>MODEL 1227</b>	<b>MODEL 1327</b>	<b>MODEL 1329</b>
0-1†	43	6163 \$13.65	6175 \$14.25	6310 \$14.85	6470 \$15.75
0-3†	2.0	Note¹ Note¹	6180 14.25	6320 14.85	6480 15.75
0-5	2.0	6164 13.65	6190 14.25	6330 14.85	6490 15.75
0-10	10.0	6165 13.65	6200 14.25	6340 14.85	6495 15.75
0-15	6.6	6166 13.65	6210 14.25	6350 14.85	6502 15.75
0-20	5.0	Note¹ Note¹	6215 14.25	6360 14.85	6524 15.75
0-25	4.0	6167 14.10	6220 14.55	6370 15.30	6530 16.50
0-50	2.0	6168 14.10	6230 14.55	6380 15.30	6540 16.50
0-100	1.0	6169 14.10	6240 14.55	6390 15.30	6550 16.50
0-150	.66	6170 14.10	6250 14.55	6400 15.30	6560 16.50
0-200	.5	6171 14.10	6260 14.55	6410 15.30	6570 16.50
0-250	.4	6172 14.10	6270 14.55	6420 15.30	6580 16.50
0-300	.33	6173 14.10	6280 14.55	6430 15.30	6590 16.50
0-500	.2	6174 14.25	6290 14.55	6440 15.30	6600 16.50
0-750	.13	Note¹ Note¹	Note¹ Note¹	6450 15.30	6610 16.50
0-1000	.05	Note¹ Note¹	6292 14.55	6460 15.30	6620 16.50
<b>DC MICROAMMETERS</b> Self Shielding Meter Movement		<b>MODEL 1212</b>	<b>MODEL 1227</b>	<b>MODEL 1327</b>	<b>MODEL 1329</b>
0-50†	1800	4294 \$17.85	4310 \$18.45	4380 \$18.90	4480 \$20.40
0-100	1800	4295 15.90	4320 16.50	4390 17.25	4490 19.20
0-200	1100	4296 14.40	4330 15.15	4400 15.75	4500 17.40
0-500†	90	4297 14.10	4340 14.85	4410 15.45	4510 16.80
25-0-25	1800	4298 18.00	Note¹ Note¹	4420 19.05	4520 20.55
50-0-50†	1800	4302 16.05	4350 16.80	4430 17.40	4530 19.35
100-0-100	1100	4300 14.55	4351 15.30	4440 15.90	4540 17.55
500-0-500	43	4301 13.80	4352 14.40	4450 15.15	4550 15.90



8" Model 728T

## TAUT BAND METERS

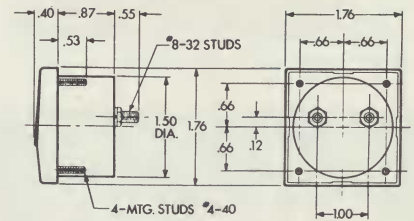
RANGE	RESISTANCE (ohms)	1½" CASE STYLE CAT. NO. PRICE	2½" CASE STYLE CAT. NO. PRICE	3½" CASE STYLE CAT. NO. PRICE	4½" CASE STYLE CAT. NO. PRICE	8" CASE STYLE CAT. NO. PRICE
<b>TAUT BAND DC MICROAMMETERS</b> Self Shielding Meter Movement		<b>MODEL 1212T</b>	<b>MODEL 1227T</b>	<b>MODEL 1327T</b>	<b>MODEL 1329T</b>	<b>MODEL 728T</b>
0-5	5750	—	—	4358† \$35.25	4458† \$37.50	—
0-10	4900	—	4303 \$29.70	4359 30.90	4459 33.45	—
0-15	1960	4601• \$26.85	4304 26.85	4361 27.75	4461 30.30	—
0-25	1960	4602• 25.05	4306 25.50	4371 26.70	4471 29.10	11200 \$33.60
0-50	1100	4603• 19.50	4311 20.10	4381 20.55	4481 22.05	11201 29.55
0-100	500	4604• 17.55	4321 18.15	4391 18.90	4491 20.85	11203 28.50
0-200	234	4605• 16.20	4331 17.10	4401 17.70	4501 19.50	Note¹ Note¹

†Resistance of 0-50 Mic Meter in Model 1212 is 5500 ohms.  
†Resistance of 0-500 Mic Meter in Model 1212 is 190 ohms.  
†High flux annular taut band meter movement.

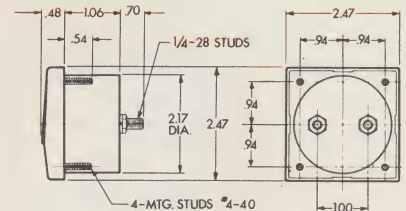
•New Panel Meter Addition.

‡Available in 8" size: Model 728—Catalog No. 11210... \$26.10.

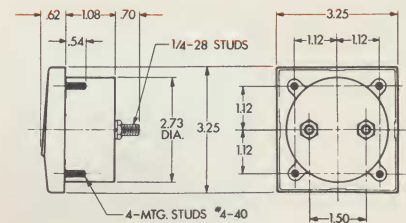
## DIMENSIONS



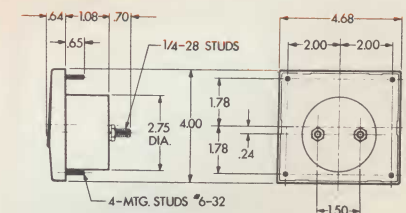
1½" Models 1212T, 1214



2½" Models 1227T, 1247, 1257



3½" Models 1327T, 1337, 1347, 1357



4½" Models 1329T, 1339, 1349, 1359

SIMPSON PANEL METERS ARE CARRIED IN STOCK BY ELECTRONIC DISTRIBUTORS EVERYWHERE.



# Simpson

## 1½", 2½", 3½", 4½" WIDE-VUE PANEL METERS

### CASE STYLES



1½" Models



2½" Models



3½" Models



4½" Models

### SIMPSON STOCK METER RANGES AND PRICES

**CALIBRATION AND DIALS**—All DC Wide-Vue meters listed below have the Simpson self-shielded movement (Calibration not affected by stray magnetic fields or magnetic mounting). All AC Wide-Vue meters have the Simpson Iron-vane type movement. AC Milliammeters and Ammeters are calibrated for use on 25 through 800 cps. All AC Voltmeters are calibrated for use on 25 through 125 cps. Calibration at frequencies up to 800 cps can be made. Contact your local Distributor for prices.

### SPECIFICATIONS

SIZE	MODEL NO.	ACCURACY	SCALE LENGTH
1½"	1212	±2% of full scale	1.5" (38.1 mm)
	1214	±3% F. S. @ 25° C. & 60 cy. Sine Wave	
2½"	1227, 1237, 1257, 1277	±2% of full scale	2.5" (63.8 mm)
	1247	±3% F. S. @ 25° C. & 60 cy. Sine Wave	
3½"	1327, 1337, 1357, 1377	±2% of full scale	3.14" (79.7 mm)
	1347	±3% F. S. @ 25° C. & 60 cy. Sine Wave	
4½"	1329, 1339, 1359, 1379*	±2% of full scale*	3.93" (100 mm)
	1349	±3% F. S. @ 25° C. & 60 cy. Sine Wave	

\*Compensated Wattmeters ±3%.

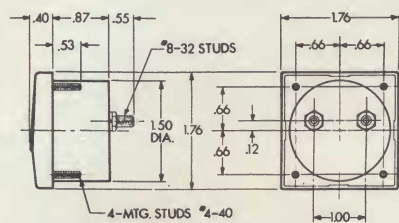
RANGE		APPROX. RESISTANCE (ohms)	1½" CASE STYLES CAT.NO. PRICE		2½" CASE STYLES CAT.NO. PRICE		3½" CASE STYLES CAT.NO. PRICE		4½" CASE STYLES CAT.NO. PRICE	
DC MILLIVOLTMETER Self Shielding Meter Movement			MODEL 1212		MODEL 1227		MODEL 1327		MODEL 1329	
0-50	10		7005	\$14.10	7010	\$14.40	7020	\$15.15	7030	\$16.50
50-0-50	20		—	—	—	—	7021	15.15	7031	16.50
RF AMMETERS Self Shielding Meter Movement							MODEL 1337		MODEL 1339	
0-1	.343		—	—	—	—	2970	\$17.55	3050	\$20.10
0-1.5	.200		—	—	—	—	2980	17.55	3060	20.10
0-2	.120		—	—	—	—	2990	17.55	3070	20.10
0-2.5	.10		—	—	—	—	3000	17.55	3080	20.10
0-3	.08		—	—	—	—	3010	17.55	3090	20.10
0-5	.045		—	—	—	—	3020	17.55	3100	20.10
0-8	.031		—	—	—	—	3030	17.55	3110	20.10
0-10	.023		—	—	—	—	3040	17.55	3120	20.10
RF MILLIAMMETERS Self Shielding Meter Movement										
0-500	.63		—	—	—	—	5362	\$20.70	5364	\$23.40
AC VOLTMETERS RECTIFIER TYPE Self Shielding Meter Movement			MODEL 1214		MODEL 1247		MODEL 1347		MODEL 1349	
0-5	2000 OHMS PER VOLT		10011	\$19.50	10015	\$18.15	10020	\$20.85	10090	\$22.95
0-10			10012	19.50	10016	18.15	10030	20.85	10100	22.95
0-15			Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>	10040	20.85	10110	22.95
0-50			Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>	10050	20.85	10120	22.95
0-150			10013	19.50	10017	18.15	10060	20.85	10130	22.95
0-300			10014	19.50	10018	18.15	10070	20.85	10140	22.95
VOLUME LEVEL INDICATORS DECIBEL METERS Self Shielding Meter Movement RANGE Zero Power Level—6 MW. 500 Ohm Line					MODEL 1247		MODEL 1347		MODEL 1349	
General-Purpose 5000 ohms			—	—	3483	\$20.40	3485	\$21.60	3487	\$22.35
VOLUME LEVEL INDICATORS V. U. METERS† Self Shielding Meter Movement Reference Level—1 MW. 600 Ohm Line			MODEL 1214		MODEL 1247		MODEL 1347		MODEL 1349	
A—Scale			10472	\$21.90	10474	\$24.15	10480	\$24.75	10490	\$26.85
B—Scale			Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>	10550	24.75	10560	26.85
DC GALVANOMETERS Self Shielding Meter Movement SENSITIVITY RESIST- MICRO- ANCE RANGE AMPERES (ohms)			MODEL 1212		MODEL 1227		MODEL 1327		MODEL 1329	
50-0-50	500-0-500	43	3692	13.80	3700	\$14.25	3730	\$15.15	3732	\$15.90
50-0-50	75-0-75	1800	3694	\$14.55	3710	15.45	3720	16.80	3734	18.45

Note<sup>1</sup> Not normally carried in stock. Distributor delivery 2-3 weeks. Prices on request.

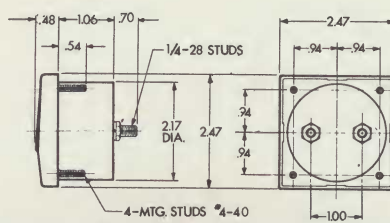
†Simpson VU meters meet all the Electrical and Ballistic specifications established by Bell Laboratories and American Standards Association as required by broadcasting, communication and sound engineers. They are available with either type A or B scales. Type A scale stresses the level in VU for monitoring wire lines. Type B scale stresses per cent use of transmitter output and is the standard for broadcast service.



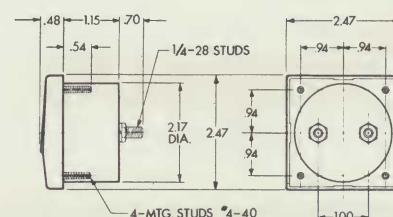
## DIMENSIONS



1 1/2" Models 1212, 1214



2 1/2" Models, 1227, 1237, 1247



2 1/2" Models 1257

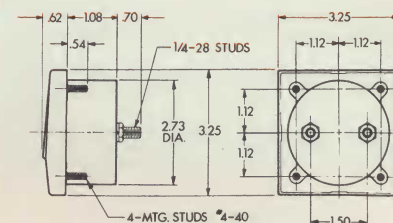
## WIDE-VUE PANEL METERS

RANGE	APPROX. RESISTANCE (ohms)	2 1/2" CASE STYLE CAT. NO. PRICE	3 1/2" CASE STYLE CAT. NO. PRICE	4 1/2" CASE STYLE CAT. NO. PRICE
<b>AC VOLTMETERS</b> Iron Vane Type Movement		<b>MODEL 1257</b>	<b>MODEL 1357</b>	<b>MODEL 1359</b>
0-5	33	—	10160 \$14.40	10260 \$16.20
0-10	133	9670 \$13.80	10170 14.40	10270 16.20
0-15	300	9675 13.80	10180 14.40	10280 16.20
0-25	833	9680 13.80	10190 14.40	10290 16.20
0-50	3,333	9690 13.80	10200 14.40	10300 16.20
0-100	16,666	9695 14.10	10210 15.15	10310 16.20
0-150	25,000	9700 14.40	10220 15.45	10320 16.50
0-250	41,166	9705 14.40	10230 15.45	10330 16.50
0-300	50,000	9710 14.40	10240 15.45	10340 16.50
0-500*	83,333	9715 18.45	10250 19.65	10350 21.00
<b>AC AMMETERS</b> Iron Vane Type Movement		<b>MODEL 1257</b>	<b>MODEL 1357</b>	<b>MODEL 1359</b>
0-1	.287	2560 \$12.90	3130 \$13.80	3260 \$16.05
0-1.5	.185	2570 12.90	3140 13.80	3270 16.05
0-2	.115	—	3150 13.80	3280 16.05
0-3	.027	2575 12.90	3160 13.80	3290 16.05
0-5	.012	2580 12.90	3170 13.80	3300 16.05
0-10	.0031	2590 12.90	3180 13.80	3310 16.05
0-15	.0022	2599 12.90	3190 13.80	3320 16.05
0-25	.0003	2609 13.65	3200 14.25	3330 16.50
0-30	.0003	2615 13.65	3205 14.25	3335 16.50
0-50	.0006	2619 13.65	3210 14.25	3340 16.50
0-75	.0005	—	3215 15.45	3345 17.70
0-100	.012	2622† 12.90	3220† 13.80	3350† 16.05
0-150	.012	2624† 12.90	3230† 13.80	3360† 16.05
0-200	.012	2626† 12.90	3240† 13.80	3370† 16.05
0-300	.012	2627† 12.90	3250† 13.80	3380† 16.05
<b>AC MILLIAMMETERS</b> Iron Vane Type Movement		<b>MODEL 1257</b>	<b>MODEL 1357</b>	<b>MODEL 1359</b>
0-10	2,000	6294 \$12.90	6625 \$13.80	6665 \$16.05
0-50	80	6295 12.90	6630 13.80	6670 16.05
0-100	20	6296 12.90	6640 13.80	6680 16.05
0-250	5	6297 12.90	6650 13.80	6690 16.05
0-500	.9	6300 12.90	6660 13.80	6699 16.05
<b>WATTMETERS DYNAMOMETER TYPE</b> Single Phase		Wattmeters calibrated for either magnetic or non-magnetic panels and for a frequency range of 25-125 cycles.		
RANGE WATTS	RANGE VOLTS	MAX. AMPS	<b>MODEL 1379</b>	
0-75	150	1.0	—	10960 \$38.55
0-150	150	2.0	—	10970 38.55
0-300	150	4.0	—	10975 38.55
0-750	150	10.0	—	10990 38.55
0-600	300	4.0	—	10980 41.25
0-1500	300	10.0	—	11000 41.25
0-3000	300	20.0	—	11010 41.25
<b>COMPENSATED WATTMETERS</b>		<b>ACCURACY ±3% F.S.</b>		<b>MODEL 1379</b>
0-10	300	.175	—	10930 51.45
0-20	300	.400	—	10940 51.45
0-30	300	.650	—	10950 51.45

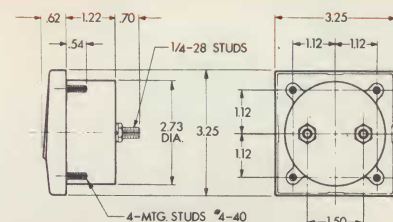
\*External Multipliers, Model 183, (Featured on page 17) are furnished on AC meters having a range of 500 volts or higher. All others are self-contained.

†2 1/2" AC ammeters are self-contained through 50 amps. 3 1/2" and 4 1/2" AC ammeters self-contained through 75 amps. Higher range AC ammeters are 5 amp meters to be used with external current transformer. See page 17 for current transformer listings.

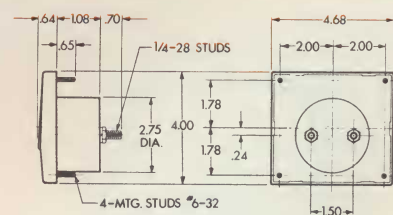
•New Model Additions.



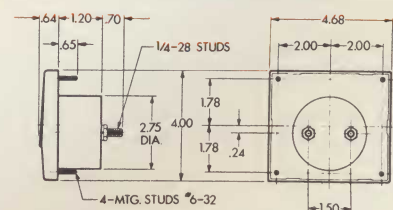
3 1/2" Models 1327, 1337, 1347



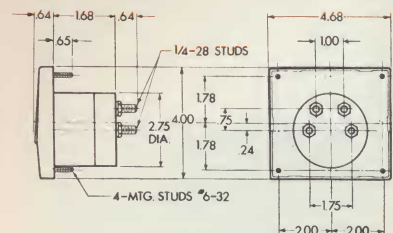
3 1/2" Model 1357



4 1/2" Models 1329, 1339, 1349



4 1/2" Model 1359



4 1/2" Model 1379

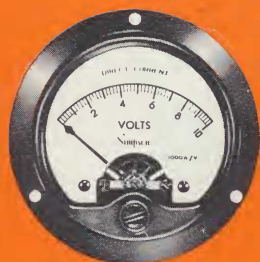


# Simpson

## INSTRUMENTS THAT

2½", 3½", 4½"

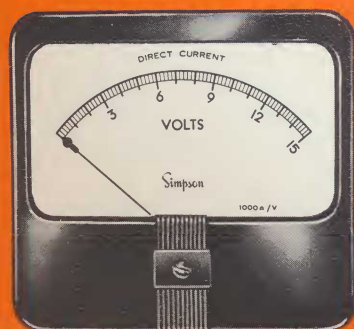
- ROUND and
- RECTANGULAR STOCK METERS



2½" Models 125, 155  
3½" Models 25, 55



2½" Models 127, 157  
3½" Models 27, 57



4½" Model 29

### SIMPSON STOCK METER RANGES AND PRICES

CALIBRATION AND DIALS—All DC meters listed below have the Simpson self-shielded movement (Calibration not affected by stray magnetic fields or magnetic mounting).

RANGE	APPROX. RESISTANCE (Ohms)	2½"			3½"			4½"	
		CASE STYLES		PRICE	CASE STYLES		PRICE	CASE STYLES	
		CATALOG NOS.			CATALOG NOS.	PRICE		CATALOG NOS.	PRICE
DC VOLTMETERS Self Shielding Meter Movement		MODELS			MODELS			MODEL	
		125	127		25	27		29	
0-1.5	1000 ohms per volt	8850	9020	\$14.40	Note <sup>1</sup>	7290	\$14.85	7620	\$16.35
0-3		8860	9030	14.40	7070	7300	14.85	7630	16.35
0-5		8870	9040	14.40	7080	7310	14.85	7640	16.35
0-8		8880	9050	14.40	Note <sup>1</sup>	7320	14.85	7650	16.35
0-10		8890	9060	14.40	7100	7330	14.85	7660	16.35
0-15		8900	9080	14.40	7110	7350	14.85	7670	16.35
0-25		8910	9090	14.40	7120	7360	14.85	7680	16.35
0-30		8920	9100	14.40	7130	7370	14.85	7690	16.35
0-50		8930	9110	14.40	7140	7380	14.85	7700	16.35
0-100		8940	9130	14.40	7150	7400	14.85	7710	16.35
0-150	8950	9140	14.40	7160	7410	14.85	7720	16.35	
0-200	8960	9160	14.40	7170	7430	14.85	7730	16.35	
0-250	2000 ohms per volt	8970	9170	14.40	7180	7440	14.85	7740	16.35
0-300		Note <sup>1</sup>	9180	14.40	7190	7450	14.85	7750	16.35
0-500		Note <sup>1</sup>	9200	15.25	7200	7470	15.60	7760	16.95
0-750		Note <sup>1†</sup>	Note <sup>1†</sup>	Note <sup>1</sup>	7210	7490	15.60	7770	16.95
0-1000		Note <sup>1†</sup>	Note <sup>1†</sup>	Note <sup>1</sup>	7220†	7495†	19.35	7780†	21.15
0-1500		Note <sup>1†</sup>	Note <sup>1†</sup>	Note <sup>1</sup>	7230†	7520†	19.65	7790†	21.45
0-2000		Note <sup>1†</sup>	9225†	19.35	7240†	7530†	20.10	7800†	21.90
0-2500		Note <sup>1†</sup>	Note <sup>1†</sup>	Note <sup>1</sup>	Note <sup>1</sup>	7550†	20.40	7810†	22.20
0-3000		Note <sup>1†</sup>	Note <sup>1†</sup>	Note <sup>1</sup>	7260†	7560†	20.70	7820†	22.50
0-4000		Note <sup>1†</sup>	Note <sup>1†</sup>	Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>	—	7830†	22.80
0-5000	Note <sup>1†</sup>	Note <sup>1†</sup>	Note <sup>1</sup>	7280†	7600†	21.30	7840†	23.10	
DC AMMETERS Self Shielding Meter Movement		MODELS			MODELS			MODEL	
		125	127		25	27		29	
0-1	.050	1460	1680	\$14.25	0005	0230	\$14.70	0450	\$16.35
0-1.5	.033	1470	1690	14.25	0020	0240	14.70	0460	16.35
0-2	.025	Note <sup>1</sup>	1709	14.25	0030	0250	14.70	0470	16.35
0-3	.0166	1490	1710	14.25	0040	0260	14.70	0480	16.35
0-5	.010	1500	1720	14.25	0050	0270	14.70	0490	16.35
0-10	.005	1510	1730	14.25	0060	0280	14.70	0500	16.35
0-15	.0033	1520	1740	14.25	0070	0290	14.70	0512	16.35
0-25	.0020	1530	1750	14.25	0080	0300	14.70	0520	16.35
0-30	.0017	1540	1760	14.25	0090	0310	14.70	0530	16.35
0-50	.001	1550	1770	14.25	0099	0320	14.70	0540	16.35
0-75	10.0	1560†	1780†	13.80	0110†	0330†	14.25	0550†	15.90
0-100	10.0	1570†	1790†	13.80	0120†	0340†	14.25	0560†	15.90
0-150	10.0	1580†	1800†	13.80	0130†	0350†	14.25	0570†	15.90
0-200	10.0	1590†	1810†	13.80	0140†	0360†	14.25	0580†	15.90
0-250	10.0	Note <sup>1†</sup>	Note <sup>1†</sup>	Note <sup>1</sup>	0150†	Note <sup>1</sup>	14.25	0590†	15.90
0-300	10.0	1610†	Note <sup>1†</sup>	13.80	0160†	0380†	14.25	0600†	15.90
0-500	10.0	1620†	Note <sup>1†</sup>	13.80	0170†	0390†	14.25	0610†	15.90
0-750	10.0	Note <sup>1†</sup>	Note <sup>1†</sup>	Note <sup>1</sup>	0177†	0400†	14.25	0620†	15.90
0-1000	10.0	Note <sup>1†</sup>	Note <sup>1†</sup>	Note <sup>1</sup>	0188†	0410†	14.25	0630†	15.90
15-0-15	.0033	Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>	0200	Note <sup>1</sup>	15.15	0640	16.80
30-0-30	.0017	1660	1880	14.55	0210	0430	15.15	0650	16.80
50-0-50	.001	1670	1890	14.55	0220	0440	15.15	0660	16.80

<sup>†</sup>External Multipliers, Model 183, are furnished on 2½" DC meters 750 volts or higher; and on 3½" and 4½" DC meters 1000 volts and higher. All others are self-contained.

<sup>‡</sup>DC ammeters are self-contained for ranges up to and including 50 amperes. Higher range DC ammeters (50MV) listed above are calibrated for 5 ft. leads and require external shunts. See page 19 for complete listings.

**Note<sup>1</sup>** Not normally carried in stock. Distributor delivery 2-3 weeks. Prices on request.

**SEE YOUR ELECTRONIC DISTRIBUTOR FOR YOUR PANEL METER AND TEST EQUIPMENT REQUIREMENTS.**



# STAY ACCURATE

## SPECIFICATIONS

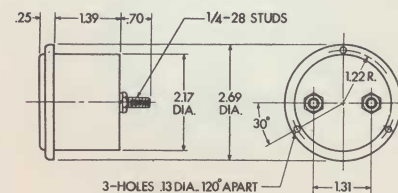
SIZE	MODEL NUMBER	ACCURACY	SCALE LENGTH
2 1/2"	125, 127	±2% of full scale	1.8" (45.7 mm)
3 1/2"	25, 27		2.5" (63.7 mm)
4 1/2"	29		3.9" (99.0 mm)

RANGE		APPROX. RESISTANCE (Ohms)		2½" CASE STYLES CATALOG NOS. PRICE		3½" CASE STYLES CATALOG NOS. PRICE		4½" CASE STYLES CAT. NO. PRICE	
DC MILLIVOLTMETERS		MODELS 125 127		MODELS 25 27		MODEL 29			
Self Shielding Meter Movement									
0-50	10	6970	6990	\$13.80	6910	6930	\$14.25	6950	\$15.60
0-100	20	Note¹	Note¹	—	Note¹	6940	14.25	6960	15.60
DC MILLIAMMETERS		MODELS 125 127		MODELS 25 27		MODEL 29			
Self Shielding Meter Movement									
0-1	43	5580	5760	\$13.50	4610	4790	\$14.10	5070	\$15.45
0-1.5	2.0	5590	5780	13.50	4620	4810	14.10	5080	15.45
0-3	2.0	Note¹	5790	13.50	4630	4820	14.10	5090	15.45
0-5	2.0	5610	5800	13.50	4640	4830	14.10	5100	15.45
0-10	10.0	5620	5810	13.50	4650	4840	14.10	5110	15.45
0-15	6.6	5630	5830	13.50	4660	4860	14.10	5120	15.45
0-20	5.0	Note¹	Note¹	—	4670	4880	14.10	5130	15.45
0-25	4.0	5650	5860	14.25	4680	4890	14.70	5140	16.35
0-50	2.0	5660	5880	14.25	4690	4910	14.70	5150	16.35
0-75	1.3	5670	Note¹	14.25	Note¹	4930	14.70	5160	16.35
0-100	1.0	5680	5910	14.25	4710	4940	14.70	5170	16.35
0-150	.66	5690	5930	14.25	4720	4960	14.70	5180	16.35
0-200	.5	5700	5940	14.25	4730	4980	14.70	5190	16.35
0-250	.4	5710	5960	14.25	4740	5000	14.70	5200	16.35
0-300	.33	5720	5970	14.25	4750	5010	14.70	5210	16.35
0-500	.2	5730	5990	14.25	4760	5030	14.70	5220	16.35
0-750	.13	Note¹	Note¹	—	Note¹	5050	14.70	5230	16.35
0-1000	.05	Note¹	6020	14.25	4780	5060	14.70	5240	16.35
DC MICROAMMETERS		MODELS 125 127		MODELS 25 27		MODEL 29			
Self Shielding Meter Movement									
0-50	1800	4210	4260	\$18.90	3760	3860	\$19.35	3960	\$20.85
0-100	1800	4220	4270	16.35	3770	3870	17.10	3970	19.05
0-200	1100	4230	4280	14.55	3780	3880	15.45	3980	17.10
0-500	90	4240	4281	14.10	3790	3890	15.15	3990	16.35
25-0-25	1800	4192	4243	19.20	3800	3900	19.50	4000	21.00
50-0-50	1800	4194	4245	16.50	3810	3910	17.25	4010	19.20
100-0-100	1100	4196	4247	14.25	3820	3920	15.60	4020	17.40
500-0-500	43	Note¹	4249	13.65	3830	3930	14.25	4030	15.60
TAUT BAND DC MICROAMMETERS		TAUT BAND METERS							
Self Shielding Meter Movement		MODELS 125T 127T		MODELS 25T 27T		MODEL 29T			
0-5	5750	—	—	—	3738*	03838*	\$35.70	3938*	\$37.95
0-10	4900	4197*	04246*	\$30.45	3739*	03839*	31.65	3939*	33.90
0-15	1960	4199*	04248*	27.15	3741*	03841*	28.35	3941*	30.80
0-25	1960	4201*	04251*	26.10	3751*	03851*	27.15	3951*	29.85
0-50	1100	4211*	04261*	20.55	3761*	03861*	21.00	3961*	22.50
0-100	500	4221*	04271*	18.00	3771*	03871*	18.75	3971*	20.70

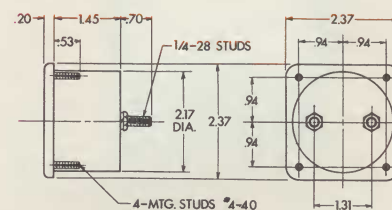
\*New Panel Meter Addition.

Note<sup>1</sup> Not normally carried in stock. Distributor delivery 2-3 weeks.

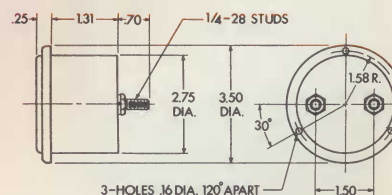
## DIMENSIONS



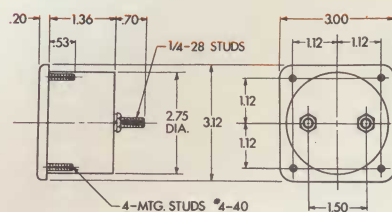
2 1/2" Model 125, 125T



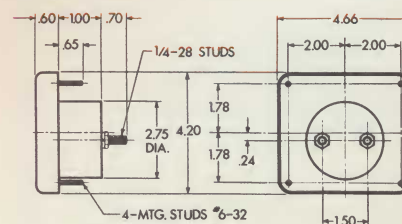
2 1/2" Model 127, 127T



3 1/2" Model 25, 25T



3 1/2" Model 27, 27T



4 1/2" Model 29, 29T



2½", 3½", 4½"

• ROUND and  
• RECTANGULAR  
PANEL METERS



2½" Models 125, 135, 155, 175  
3½" Models 25, 35, 55, 75

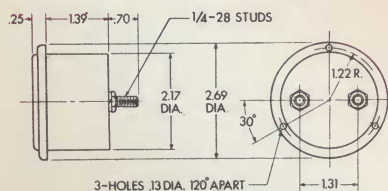


2½" Models 127, 137, 157, 177  
3½" Models 27, 37, 57, 77

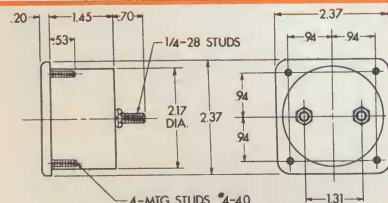


4½" Models 29, 39, 59, 79

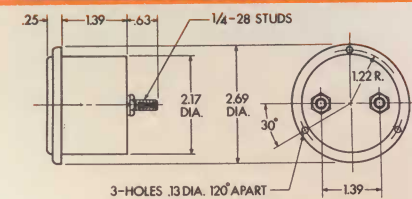
DIMENSIONS



2½" Models 125, 145, 155



2½" Models 127, 147, 157



2½" Model 135

SIMPSON STOCK METER RANGES AND PRICES

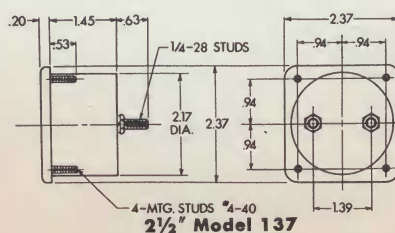
CALIBRATION AND DIALS—All DC meters listed below have the Simpson self-shielding movement. (Calibration not affected by stray magnetic fields or magnetic mounting). All AC meters have the Simpson Iron Vane type movement. AC Ammeters and Milliammeters are calibrated for use on 25 through 800 cps. AC Voltmeters are calibrated for use on 25-125 cps. Calibration at frequencies up through 800 cps can be made. Contact your local Distributor for prices.

Wattmeters listed below have the Simpson dynamometer movement calibrated for either magnetic or non-magnetic panels and for a frequency range of 25-125 cps. Accuracy  $\pm 3\%$ .

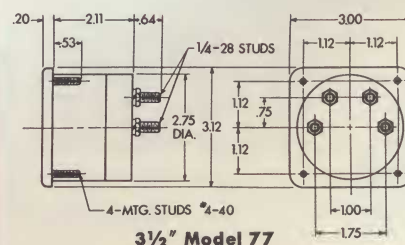
RANGE		APPROX. IMPEDANCE (Ohms) @ 60 cps	2½" CASE STYLES CATALOG NOS. PRICE			3½" CASE STYLES CATALOG NOS. PRICE			4½" CASE STYLES CAT. NO. PRICE		
RF AMMETERS Self Shielding Meter Movement Internal Thermocouple Type			MODELS 135 137			MODELS 35 37			MODEL 39		
0-1	.343		1901	1980	\$15.60	670	750	\$16.50	870	\$19.05	
0-1.5	.200		1910	2000	15.60	Note <sup>1</sup>	770	16.50	880	19.05	
0-2	.120		Note <sup>1</sup>	2010	15.60	Note <sup>1</sup>	780	16.50	890	19.05	
0-2.5	.10		1930	Note <sup>1</sup>	15.60	Note <sup>1</sup>	800	16.50	900	19.05	
0-3	.08		1940	2040	15.60	710	810*	16.50	910	19.05	
0-5	.045		1950	2060	15.60	720	830*	16.50	920	19.05	
0-8	.031		Note <sup>1</sup>	2080	15.60	Note <sup>1</sup>	850	16.50	930	19.05	
0-10	.023		Note <sup>1</sup>	2090	15.60	736	860	16.50	940	19.05	
RF MILLIAMMETERS Self Shielding Meter Movement Internal Thermocouple Type						MODELS 35 37			MODEL 39		
‡0-115	4.0		—	—	—	5250	5290	\$31.20	5330	\$32.85	
0-150	4.5		—	—	—	5260	5300	19.80	5340	22.50	
0-250	3.5		—	—	—	5270	5310	19.80	5350	22.50	
0-500	.63		—	—	—	5280	5320	19.80	5360	22.50	
WATTMETERS Dynamometer Type Single Phase Maximum			MODELS 175 177			MODELS 75 77			MODEL 79		
Range	Volts	Amps									
0-75	150	1.0	Note <sup>1</sup>	10860	\$28.95	10580	10650	\$30.45	10720	\$37.35	
0-150	150	2.0	10800	10870	28.95	10590	10660	30.45	10730	37.35	
0-300	150	4.0	Note <sup>1</sup>	10880	28.95	10600	10670	30.45	10740	37.35	
0-750	150	10.0	10830	10900	28.95	10620	10690	30.45	10760	37.35	
0-600	300	4.0	10820	10890	31.65	10610	10680	33.00	10750	40.20	
0-1500	300	10.0	10840	10910	31.65	Note <sup>1</sup>	10700	33.00	10770	40.20	
0-3000	300	20.0	Note <sup>1</sup>	10920	31.65	10640	10710	33.00	10780	40.20	
COMPENSATED WATTMETERS Single Phase Maximum			MODELS			MODELS 75 77			MODEL 79		
Range	Volts	Amps									
0-10	300	.175	—	—	—	Note <sup>1</sup>	10642	\$48.60	10712	\$50.40	
0-20	300	.400	—	—	—	Note <sup>1</sup>	10644	48.60	10714	50.40	
0-20	500	.175	—	—	—	Note <sup>1</sup>	10646	48.60	10716	50.40	
0-30	300	.650	—	—	—	Note <sup>1</sup>	10645	48.60	10715	50.40	
0-30	500	.300	—	—	—	Note <sup>1</sup>	10648	48.60	10718	50.40	
0-50	500	.500	—	—	—	Note <sup>1</sup>	10649	48.60	10719	50.40	
DC GALVANOMETERS Scale Sensitivity Res. Micro-Amps. Ohms			MODELS 125 127			MODELS 25 27			MODEL 29		
50-0-50	500-0-500	43	3670	3690	\$14.10	3630	3650	\$14.55	3654	16.35	
50-0-50	75-0-75	1800	3660	3680	15.15	3620	3640	16.50	3652	17.10	

†0-100 Linear Scale

Note<sup>1</sup> Not normally carried in stock. Distributor delivery 2-3 weeks.



2½" Model 137



3½" Model 77



# SPECIFICATIONS

SIZE	MODEL NUMBER	ACCURACY	SCALE LENGTH
2½"	125, 127, 135, 137	±2% of full scale	1.8" (45.7 mm)
	175, 177		1.6" (41.1 mm)
	155, 157		2.5" (63.7 mm)
3½"	25, 27, 35, 37	(Compensated wattmeters ±3%)	2.3" (57.4 mm)
	75, 77		3.8" (97 mm)
	55, 57		3.5" (89.0 mm)
4½"	29, 39		
	59		
	79		

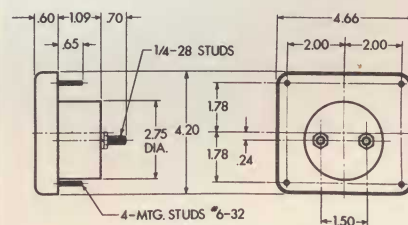
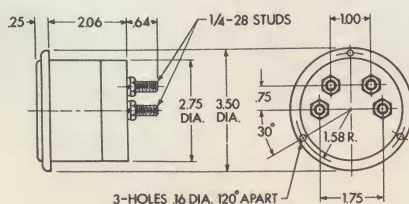
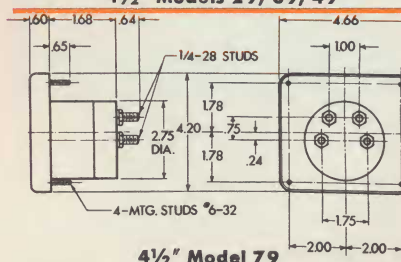
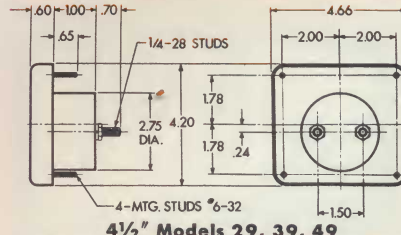
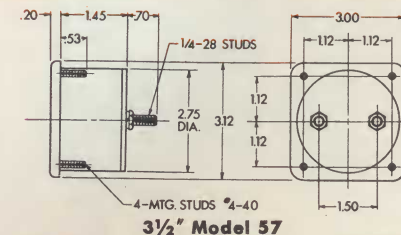
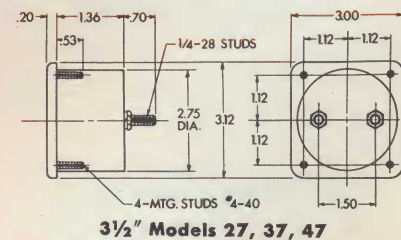
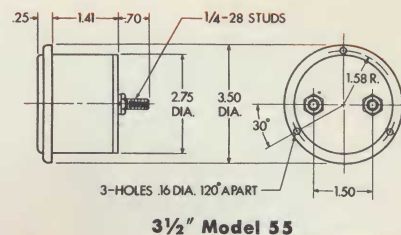
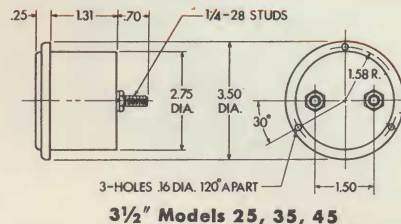
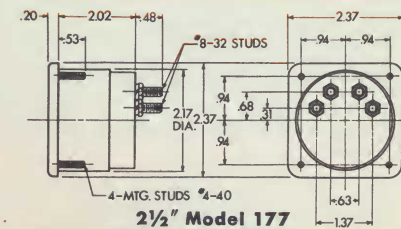
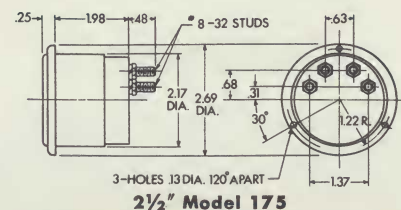
RANGE		APPROX. IMPEDANCE (Ohms) @ 60 cps	2½" CASE STYLES CATALOG NOS.    PRICE			3½" CASE STYLES CATALOG NOS.    PRICE			4½" CASE STYLES CAT. NO.    PRICE		
AC VOLTMETERS Iron Vane Type Meter Movement			MODELS 155    157			MODELS 55    57			MODEL 59		
0-1.5	3		Note¹	Note¹	Note¹	Note¹	Note¹	Note¹	8710	\$16.20	
0-3	12		Note¹	Note¹	Note¹	Note¹	8540	\$14.10	8720	16.20	
0-5	33		Note¹	9390	\$13.50	8410	8550	14.10	8730	16.20	
0-10	133		9260	9400	13.50	8420	8566	14.10	8740	16.20	
0-15	300		9270	9420	13.50	8430	8580	14.10	8750	16.20	
0-25	833		9280	9440	13.50	8440	8599	14.10	8760	16.20	
0-50	3,333		9290	9450	13.50	8450	8610	14.10	8770	16.20	
0-100	16,666		Note¹	9460	14.55	8460	8620	15.30	8780	16.20	
0-150	25,000		9310	9470	14.25	8470	8630	15.15	8790	16.35	
0-250	41,166		9320	9490	14.25	8480	8650	15.15	8800	16.35	
0-300	50,000		9330	9500	14.25	8490	8660	15.15	8810	16.35	
0-500	83,333		9340†	9520	19.20	8500†	8680†	19.50	8820†	20.25	
0-750	125,000		Note¹	Note¹	Note¹	8510†	8690†	21.30	8830†	22.20	
0-1000	166,666		Note¹	Note¹	Note¹	8520†	8700†	22.95	8840†	24.00	
AC AMMETERS Iron Vane Type Meter Movement			MODELS 155    157			MODELS 55    57			MODEL 59		
0-1	.287		2100	2270	\$12.75	950	1120	\$13.50	1290	\$15.90	
0-1.5	.185		Note¹	Note¹	Note¹	960	1130	13.50	1302	15.90	
0-2	.115		2120	2290	12.75	970	1140	13.50	1310	15.90	
0-3	.027		2130	2300	12.75	980	1145	13.50	1320	15.90	
0-5	.012		2140	2310	12.75	990	1160	13.50	1330	15.90	
0-10	.003		2150	2320	12.75	1001	1170	13.50	1340	15.90	
0-15	.0022		2160	2330	12.75	1010	1180	13.50	1350	15.90	
0-25	.0003		2170	2340	13.05	1020	1190	13.80	1360	16.50	
0-30	.0003		2180	2350	13.05	1030	1200	13.80	1370	16.50	
0-50	.0006		2190	2360	13.05	1040	1210	13.80	1380	16.50	
0-75	.0005		Note¹	Note¹	Note¹	3432	3434	14.55	3436	17.40	
0-75	.012		2200†	2370	12.75	1050†	1220†	13.50	1390†	15.90	
0-100	.012		2210†	2380†	12.75	1060†	1230†	13.50	1400†	15.90	
0-150	.012		2220†	2390†	12.75	1070†	1240†	13.50	1410†	15.90	
0-200	.012		Note¹	Note¹	Note¹	1080†	1250†	13.50	1420†	15.90	
0-250	.012		2240†	2410†	12.75	1090†	1260†	13.50	1430†	15.90	
0-300	.012		Note¹	2420†	12.75	1100†	1270†	13.50	1440†	15.90	
0-500	.012		2260†	2422†	12.75	1110†	1280†	13.50	1450†	15.90	
AC MILLIAMMETERS Iron Vane Type Meter Movement			MODELS 155    157			MODELS 55    57			MODEL 59		
0-10	2,000		6030	6100	\$12.75	Note¹	5440	\$13.50	5510	\$15.90	
0-15	875		—	—	—	5380	5499	13.50	Note¹	Note¹	
0-25	390		—	—	—	Note¹	5460	13.50	5530	15.90	
0-50	80		6060	6130	12.75	5400	5470	13.50	5540	15.90	
0-100	20		6070	6140	12.75	5410	5480	13.50	5550	15.90	
0-250	5		6080	6150	12.75	5420	5490	13.50	5560	15.90	
0-500	.9		6090	6152	12.75	5430	5500	13.50	5570	15.90	

Note¹ Not normally carried in stock. Distributor delivery 2-3 weeks.

‡External Multipliers, Model 183, (Featured on page 17) are furnished AC on meters having a range of 500 volts or higher; on 2½" DC meters 750 volts or higher; and on 3½" and 4½" DC meters 1000 volts and higher. All others are self-contained.

†These meters are 5 amp meters with scales as indicated and require external current transformers. See listings on page 19.

# DIMENSIONS



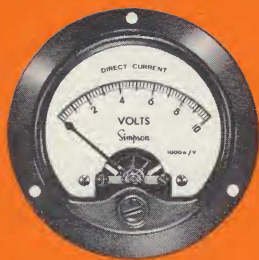


# Simpson

INSTRUMENTS THAT STAY ACCURATE

2½", 3½", 4½", 6"

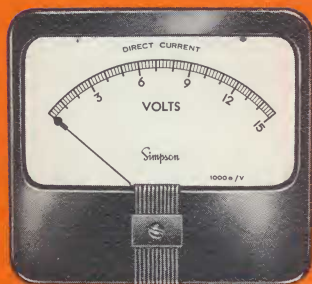
• ROUND and  
• RECTANGULAR  
STOCK METERS



2½" Model 145  
3½" Model 45



2½" Model 147  
3½" Model 47



4½" Model 49



6" Model 1150-1  
1% Meter supplied  
with Mirror Scale

## SIMPSON STOCK METER RANGES AND PRICES

CALIBRATION AND DIALS—All meters have the Simpson self-shielding movement and may be used on either magnetic or non-magnetic panels.

### SPECIFICATIONS

SIZE	MODEL NO.	ACCURACY	SCALE LENGTH
2½"	145, 147	DB and Rectifier type meters ±3% of full scale @ 25°C. and 60 cycle sine wave VU meters per ASA specifications	1.8" (45.7 mm)
3½"	45, 47		2.5" (63.7 mm)
4½"	49, 142		3.8" (97 mm)
6"	1150,	±2% of full scale	4.6" (114.8 mm)
	1150-1	±1% of full scale, mirrored scale	

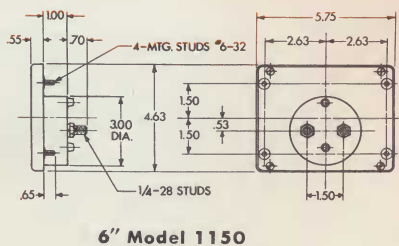
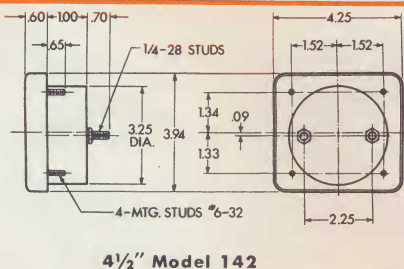
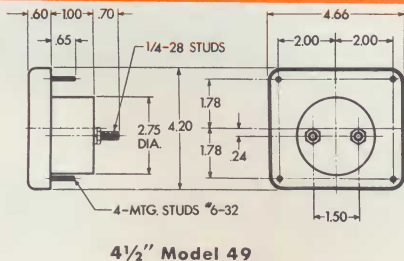
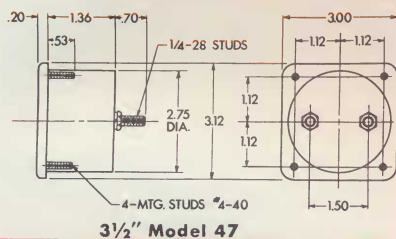
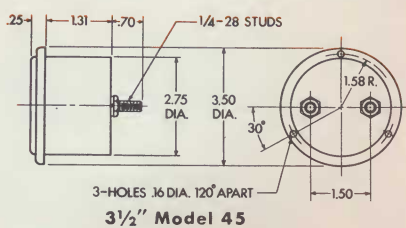
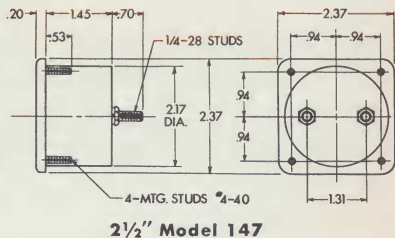
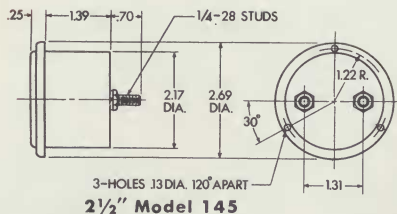
RANGE		Approx. RESISTANCE (Ohms)		2½"		3½"		4½"	
		CASE STYLES		CASE STYLES		CASE STYLES		CASE STYLE	
		CATALOG NOS.		PRICE		CATALOG NOS.		PRICE	
AC VOLTMETERS						MODELS		MODEL	
Rectifier Type						45 47		49	
Self Shielding Meter Movement									
0-1	2000 ohms per volt	—	—	—	Note <sup>1</sup>	8120	\$20.70	8300	\$22.65
0-3		—	—	—	Note <sup>1</sup>	8130	20.70	8310	22.65
0-5		—	—	—	7960	8140	20.70	8320	22.65
0-10		—	—	—	7970	8150	20.70	8330	22.65
0-15		—	—	—	7980	8160	20.70	8340	22.65
0-50		—	—	—	Note <sup>1</sup>	8170	20.70	8350	22.65
0-100		—	—	—	Note <sup>1</sup>	8180	20.70	8360	22.65
0-150		—	—	—	8010	8190	20.70	8370	22.65
0-300		—	—	—	8020	8200	20.70	8371	22.65
AC MILLIAMMETERS						MODELS		MODEL	
Rectifier Type						45 47		49	
Self Shielding Meter Movement									
0-1	600	—	—	—	6820	6850	\$19.80	6880	\$21.45
0-2	400	—	—	—	Note <sup>1</sup>	6860	19.80	6890	21.45
0-5	200	—	—	—	6840	6870	19.80	6900	21.45
AC MICROAMMETERS						MODELS		MODEL	
Rectifier Type						45 47		49	
Self Shielding Meter Movement									
0-100	3400	—	—	—	4080	4120	\$22.65	4160	\$24.30
0-200	2400	—	—	—	—	—	—	4170	21.90
0-300	1800	—	—	—	Note <sup>1</sup>	4140	19.80	4180	21.45
0-500	1200	—	—	—	Note <sup>1</sup>	4150	19.50	4190	21.15
Volume Level Indicators									
DECIBEL METERS		MODELS		MODELS		MODELS		MODEL	
Zero Power Level		145 147		45 47		45 47		49	
6 MW 500 Ohm Line									
Self Shielding Meter Movement									
GENERAL PURPOSE TYPE									
-10 to +6 db 5000 ohms		3470	3480	\$20.25	Note <sup>1</sup>	3450	\$20.40	3460	\$22.20
Volume Level Indicators									
VU METERS†						MODELS		MODEL	
Reference Level						45 47		142	
1 MW 600 Ohm Line									
Self Shielding Meter Movement									
"A" SCALE; Not Illuminated		—	—	—	10440	10450	\$24.60	10460	\$26.70
"B" SCALE; Not Illuminated		—	—	—	Note <sup>1</sup>	10520	24.60	10530	26.70
"A" SCALE; Illuminated		—	—	—	—	—	—	10470	29.40
"B" SCALE; Illuminated		—	—	—	—	—	—	10540	29.40

Note<sup>1</sup> Not normally carried in stock. Distributor delivery 2-3 weeks. Prices on request.

†Simpson VU meters meet all the Electrical and Ballistic specifications established by Bell Laboratories and American Standards Association as required by broadcasting, communication and sound engineers. They are available with either type A or B scales. Type A scale stresses the level in VU for monitoring wire lines. Type B scale stresses per cent use of transmitter output and is the standard for broadcast service. Impedance is 3900 Ω at "0" V.U. deflection.



## DIMENSIONS



## 1% and 2% Tolerance 6" RECTANGULAR CASE STYLE—MODELS 1150 Self Shielding Meter Movement

RANGE	RESISTANCE APPROX. (Ohms)	CAT. NO.	PRICE	RANGE	RESISTANCE APPROX. (Ohms)	CAT. NO.	PRICE
<b>DC VOLTMETERS</b> 2%				<b>DC MILLIAMMETERS</b> 2%			
<b>MODEL 1150</b>				<b>MODEL 1150</b>			
0-10	1000 OHMS PER VOLT	9533	\$20.85	0-1	43	6153	\$20.85
0-25		9534	20.85	0-10	10	6154	20.85
0-50		9535	20.85	0-50	2.0	6155	20.85
0-100		9536	20.85	0-100	1.0	6156	20.85
0-150		9537	20.85	0-500	.2	6157	20.85
0-300		9538	20.85	<b>DC MILLIAMMETERS</b> 1% Mirrored Scale			
0-500	2000 Ω/V	9539	21.45	<b>MODEL 1150-1</b>			
<b>DC MILLIVOLTMETERS</b> 2%				0-1	43	6158	\$26.25
<b>MODEL 1150</b>				0-100	1.0	6161	26.25
0-50	10	7003	\$21.75	0-500	.2	6162	26.25
<b>DC AMMETERS</b> 2%				<b>DC MICROAMMETERS</b> 2%			
<b>MODEL 1150</b>				<b>MODEL 1150</b>			
0-1	.050	2424	\$21.75	0-15	5500	4282	\$33.00
0-5	.010	2425	21.75	0-25	5500	4283	29.55
0-10	.005	2426	21.75	0-50	5200	4284	27.00
0-15	.0033	2427	21.75	0-100	2100	4285	25.80
0-25	.0020	2428	21.75	0-200	1100	4286	22.50
0-30	.0016	2429	21.75	0-500	90	4287	21.90
0-50	.001	2430	21.75	<b>DC MICROAMMETERS</b> 1% Mirrored Scale			
				<b>MODEL 1150-1</b>			
				0-50	5200	4290	\$32.40
				0-100	2100	4291	31.20
				0-200	1100	4292	27.90
				0-500	90	4293	27.30

## 3 1/2" ELAPSED TIME PANEL METERS

Widely used by research labs, manufacturing plants, broadcasting stations . . . to keep life and performance records based on operating time. These meters use self-starting synchronous clock motors. They indicate up to 99999.9, then recycle and begin again at 00000.0.

Molded bakelite case similar to the Simpson 3 1/2" rectangular and round meters. Case depth—2 9/16".

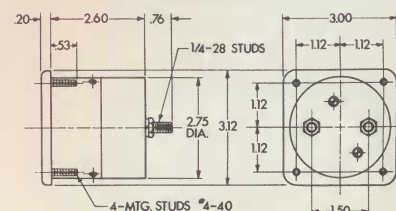
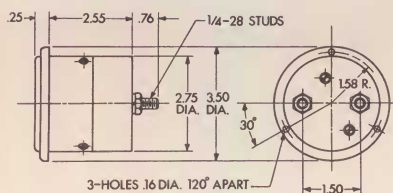
RANGE	MODEL 55ET CAT. NO.	PRICE	MODEL 57ET CAT. NO.	PRICE
120V-60 cps	3580	\$20.85	3590	\$20.85
240V-60 cps	3600	21.15	3610	21.15



3 1/2" Model 55ET



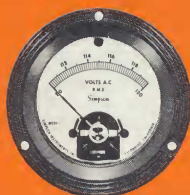
3 1/2" Model 57ET



3 1/2" Model 57ET



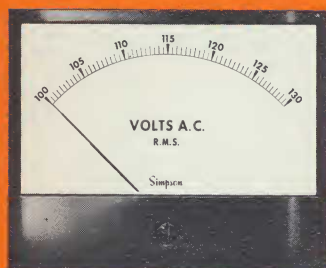
# RUGGED-SEAL SEGMENTAL STOCK METERS



2 1/2", 3 1/2", 4 1/2" Models



3 1/2", 4 1/2" Models

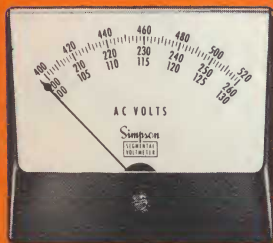


4" x 6" Models

## WIDE-VUE AND BAKELITE SEGMENTAL VOLTMETERS Single, Multi-Range



3 1/2" Model 1347



MULTI-RANGE 4 1/2" Model 1349



4 1/2" Model 49

## SIMPSON AVERAGE SENSING, TRUE RMS & DC SEGMENTAL INSTRUMENTS

Segmental Voltmeters and frequency meters make it possible to measure very small changes in input conditions.

The significant portion of the overall voltage or frequency range is expanded to occupy the full scale length. Thus, only that segment of the range that is important appears. In addition to the standard expansions and accuracies shown, special segmental voltmeters can be built on order. Write the factory for a quotation.

The A.C. segmental voltmeters are available in either average sensing or true R.M.S. sensing units. When working with sine wave currents or when other measurements will be made with average sensing equipment, the average sensing meters are preferred.

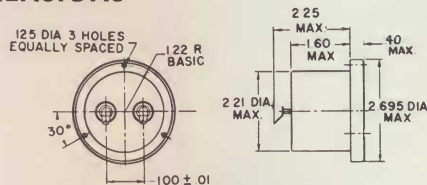
When working with distorted waveforms, as would be encountered in constant voltage transformers, S.C.R. circuits, D.C. to A.C. solid state inverters or similar equipment, the true R.M.S. sensing meter would probably be preferred.

GENERAL SPECIFICATIONS WIDE-VUE and BAKELITE CASE STYLES				RUGGED-SEAL and RUGGEDIZED METAL CASE STYLES				
AVERAGE SENSING AC SEGMENTAL VOLTMETERS				RMS SENSING AC SEGMENTAL VOLTMETERS			DC SEGMENTAL VOLTMETERS	FREQUENCY METERS
RANGE	100-130 AC Volts	100-130 200-260 400-520 AC Volts	100-130 200-260 400-520 AC Volts	100-130 AC Volts	105-125 AC Volts	110-120 AC Volts	—	—
ACCURACY (% OF CENTER SCALE VALUE)	±.5%	100-130 ±.5% 200-260 ±.75% 400-520 ±.75%	—	±1.0%	±.5%	±.3%	±.5%	±.25%
FREQUENCY RANGE	20-2000 CPS	50-1000 CPS	—	55-550 CPS			—	—
CENTER SCALE VALUE	115 Volts	115/230/460 Volts	—	115 Volts	115 Volts	115 Volts	27 Volts	60 CPS 400 CPS
SENSITIVITY OR POWER CONSUMPTION	.6 to 1.3 VA (Sensitivity decreases as input voltage increases)			50 OPV	65 OPV	80 OPV	100 OPV	3 VA Max.
MAX. INPUT VOLTAGE (10 SECONDS)	150 Volts RMS	150/300/600 Volts RMS	—	150 Volts RMS			40 Volts	140 Volts RMS
SQUARE WAVE WAVEFORM INFLUENCE	11%			2.5%	2.0%	1.0%	—	.1%
TRIANGULAR WAVE	5%			1.2%	.6%	.3%	—	.1%
VOLTAGE INFLUENCE 105-125 Volts	—	—	—	—	—	—	—	.25%
MOVEMENT TYPE	Self Shielding			Shielded External Magnet				

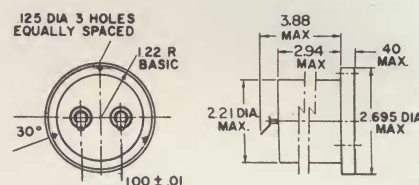
\*Supplied with external potential transformer

External Potential Transformer  
Supplied with Multi-Range Segmental Panel Meter.

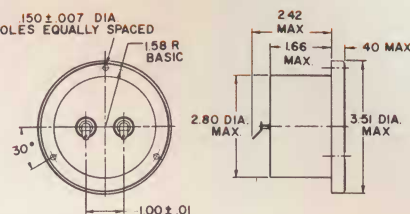
## DIMENSIONS



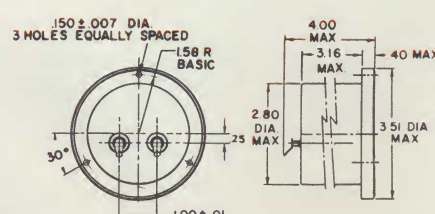
2 1/2" Model 3222



2 1/2" Model 3282

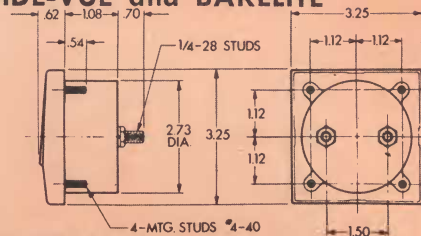


3 1/2" Model 3223

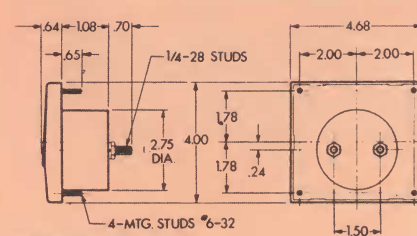


3 1/2" Model 3283

## WIDE-VUE and BAKELITE



3 1/2" Model 1347



4 1/2" Model 1349



## STOCK PANEL METER RANGES AND PRICES

### ROUND RUGGEDIZED SEGMENTAL PANEL METERS

ROUND PANEL METERS			2 1/2"		3 1/2"		4 1/2"	
Range	Center Scale Value	Accuracy*	CAT. NO.	PRICE	CAT. NO.	PRICE	CAT. NO.	PRICE
<b>AC VOLTMETERS</b>			<b>MODEL 3282</b>		<b>MODEL 3283</b>		<b>MODEL 3284</b>	
100-130	115V	1.0%	16285	\$ 77.10	16305	\$ 70.95	16335	\$ 78.75
105-125	115V	0.5%	16290	77.10	16310	70.95	16340	78.75
110-120	115V	0.3%	16295	77.10	16315	70.95	16345	78.75
<b>DC VOLTMETERS</b>			<b>MODEL 3222</b>		<b>MODEL 3223</b>		<b>MODEL 3224</b>	
24-30	27V	0.5%	16300	\$ 66.00	16320	\$ 60.15	16350	\$ 67.65
<b>FREQUENCY METERS†</b>					<b>MODEL 3283</b>		<b>MODEL 3284</b>	
cps	cps	0.25%	—	—	16330	167.85	16360	175.50
380-420	400							

### SQUARE RUGGED-SEAL SEGMENTAL PANEL METERS

SQUARE PANEL METERS			3 1/2"		4 1/2"		4" x 6"	
Range	Center Scale Value	Accuracy*	CAT. NO.	PRICE	CAT. NO.	PRICE	CAT. NO.	PRICE
<b>AC VOLTMETERS</b>			<b>MODEL 3383</b>		<b>MODEL 3384</b>		<b>MODEL 3386</b>	
100-130	115V	1.0%	16365	\$ 64.95	16395	\$ 71.55	16425	\$ 76.50
105-125	115V	0.5%	16370	64.95	16400	71.55	16430	76.50
110-120	115V	0.3%	16375	64.95	16405	71.55	16435	76.50
<b>DC VOLTMETERS</b>			<b>MODEL 3323</b>		<b>MODEL 3324</b>		<b>MODEL 3326</b>	
24-30	27V	0.5%	16380	\$ 54.15	16410	\$ 60.75	16440	\$ 65.40
<b>FREQUENCY METERS†</b>			<b>MODEL 3383</b>		<b>MODEL 3384</b>		<b>MODEL 3386</b>	
cps	cps	0.25%	16390	163.20	16420	168.30	16450	173.25
380-420	400							

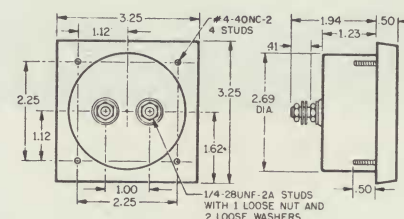
### BAKELITE SEGMENTAL PANEL METERS • Single, Multi-Range

			3 1/2"		4 1/2"	
Range	Center Scale Value	Accuracy*	CAT. NO.	PRICE	CAT. NO.	PRICE
<b>AC VOLTMETERS</b>			<b>MODEL 1347</b>		<b>MODEL 1349</b>	
100-130	115 V	.5%	10152	\$45.00	10155	\$45.15
100-130	115 V	.5%	—	—	10157	\$55.80
200-260	230 V	.75%	—	—	—	—
400-520	460 V	.75%	—	—	—	—

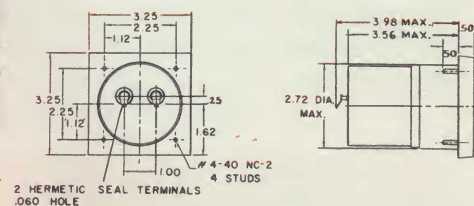
\*Accuracy is in percent of center scale value.

†Frequency meters are checked @ the center scale frequency @ 25°C and 115 volts sine wave after 30 minute warmup. Accuracy after 1.0 minute warmup is 1.0%. At end scale indications, maximum error will be 0.5%.

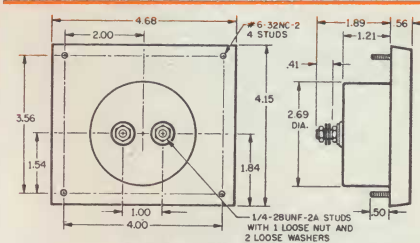
## DIMENSIONS



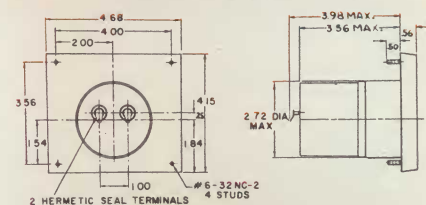
3 1/2" Model 3323



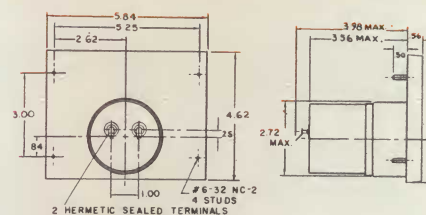
3 1/2" Model 3383



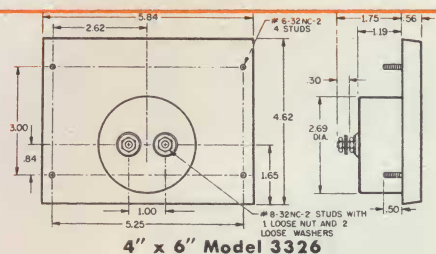
4 1/2" Model 3324



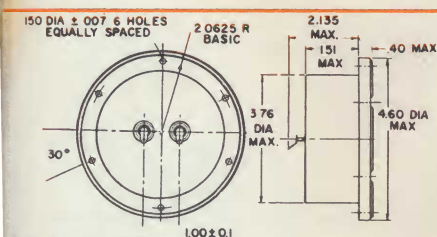
4 1/2" Model 3384



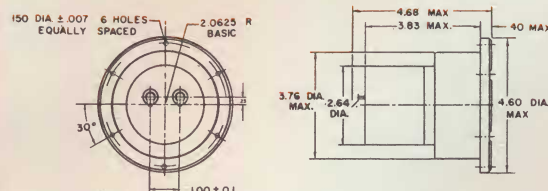
4" x 6" Model 3386



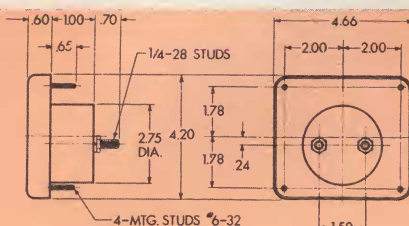
4" x 6" Model 3326



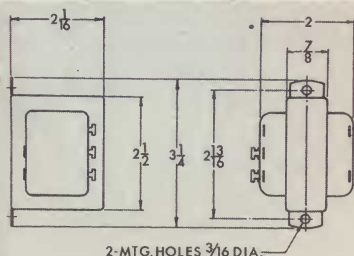
4 1/2" Model 3224



4 1/2" Model 3284



4 1/2" Model 49



External Potential Transformer

*Simpson*



# EDGEWISE PANEL METERS BARREL TYPE CONSTRUCTION

## 1½", 2½"

Where your panel designs call for making every square inch count, or where saving weight is important, Simpson edgewise meters solve many design problems. These meters are supplied with complete hardware which includes the bezel and two nuts. Mounting is fast and easy.

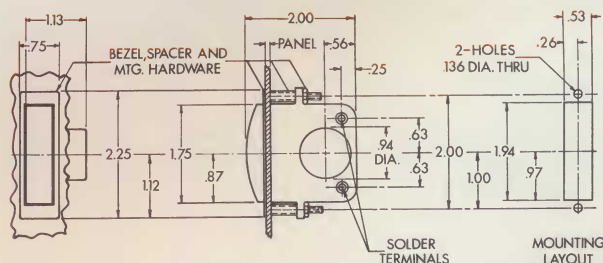
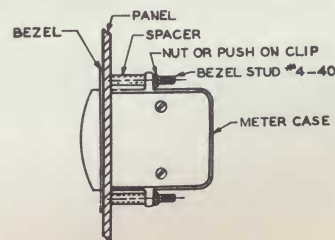
RANGE	APPROX. RESISTANCE (Ohms)	1½" CASE STYLE		2½" CASE STYLE	
		CAT. NO.	PRICE	CAT. NO.	PRICE
<b>DC VOLTMETERS</b> Self-Shielding Meter Movement		<b>MODEL 1521</b>		<b>MODEL 1522</b>	
0-10	1000 Ω/volt	10354	\$15.45	10360	\$16.50
0-15	1000 Ω/volt	10355	15.45	10370	16.50
0-25	1000 Ω/volt	10356	15.45	10375	16.50
0-50	1000 Ω/volt	10357	15.45	10380	16.50
0-150	1000 Ω/volt	10358	15.45	10390	16.50
0-500	2000 Ω/volt	10359	15.60	10410	16.80
<b>DC MILLIAMMETERS</b> Self-Shielding Meter Movement		<b>MODEL 1521</b>		<b>MODEL 1522</b>	
0-1	20	6811	\$15.30	6710	\$16.35
0-5	2.5	6812	15.30	6720	16.35
0-10	13.5	6813	15.30	6730	16.35
0-25	5.4	6815	15.90	6740	17.10
0-50	2.7	6816	15.90	6750	17.10
0-100	1.35	6817	15.90	6760	17.10
0-500	.27	6819	15.90	6810	17.10
<b>DC AMMETERS</b> Self-Shielding Meter Movement		<b>MODEL 1521</b>		<b>MODEL 1522</b>	
0-5	.010	—	—	3390	\$17.40
0-25	.002	—	—	3420	17.40
<b>DC MILLIVOLTMETERS</b> Self-Shielding Meter Movement		<b>MODEL 1521</b>		<b>MODEL 1522</b>	
0-50	10 Ω	7013	\$16.20	07011	\$17.40
<b>DC MICROAMMETERS</b> Self-Shielding Meter Movement		<b>MODEL 1521</b>		<b>MODEL 1522</b>	
0-25	3150	4552†	\$23.40	4560	\$24.45
0-50	1800	4553	20.40	4570	21.45
0-100	1100	4554	18.00	4580	19.20
0-200	290	4555	16.20	4590	17.40
0-500	90	4556	15.75	4600	16.95
<b>VOLUME LEVEL INDICATORS</b> VU METERS Self-Shielding Meter Movement		<b>MODEL 1541</b>		<b>MODEL 1542</b>	
"A" SCALE	—	—	—	10500	\$27.30
"B" SCALE	—	—	—	10570	27.30
<b>AC VOLTMETERS</b> Rectifier Type Self-Shielding Meter Movement		<b>MODEL 1541</b>		<b>MODEL 1542</b>	
0-150	1000 Ω/volt	10415	\$20.10	10420	\$21.15
0-300	1000 Ω/volt	—	—	10430	21.15

†Resistance of Model 1521 0-25 Mics is 5500 Ω.

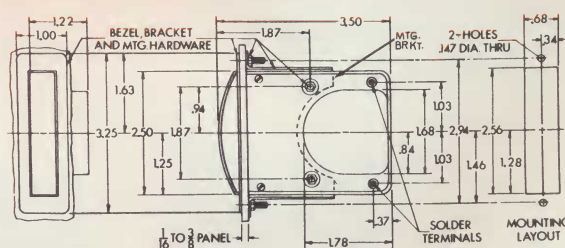


SPECIFICATIONS	Models	
	1½" 1521, 1541	2½" 1522, 1542
Accuracy	DC ± 2% of full scale; AC rectifier type ± 3% of full scale @ 25° and 60 cycle sine wave	
Movement Type	Self Shielding Meter Movement	
Scale Length	1¾"	1⅞"
Pointer	Lance	
Case Construction	Dustproof, molded acrylic	
Terminals	Solder (ammeters—stud type)	
Net Weight	5 ounces	6½ ounces

## MOUNTING DIAGRAMS 1½" and 2½" SIZES



1½" Models 1521, 1541



2½" Models 1522, 1542





## EDGEWISE PANEL METERS STACKS Horizontally or Vertically 1½", 2½"

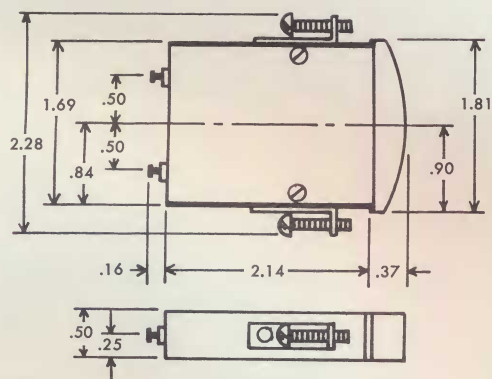
Simpson's new miniature edgewise panel meter has a unique Self-Shielding core magnet movement\* that eliminates the need for the protruding barrel that is prevalent in other edgewise meter designs. It lends itself to a design that is sharp, modern, extremely compact and with a meter scale that extends nearly to the full width and height of the meter. An optimum scale display area allows for the use of large, easy-to-read numerals on a horizontal plane.

\*Patent Pending

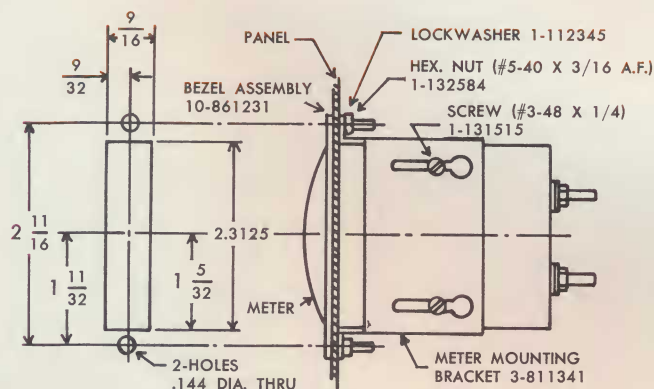
### SPECIFICATIONS

#### Models

	1½" 1921, 1941	2½" 1622, 1642
Accuracy	± 2% of full scale	
Movement Type	Self Shielding Core Magnet Movement	
Scale Length	1.370 inches	1.85 inches
Pointer	Lance	
Case Construction	Steel Housing with rustproof finish; plastic window; insulated terminals; dustproof construction.	
Terminals	Solder Type	6-32 studs
Dielectric	1500 Volts RMS	
Panel Cut Out	.525" x 1.718"	.562 x 2.312
Hardware	Removable brackets with clamping screws.	Bezel, bracket, lockwashers & nuts.
Net Weight	3½ ounces	4½ ounces
Shipping Weight	5½ ounces	6½ ounces



1½" Model 1921



2½" Model 1622

APPROX. RESISTANCE (Ohms)		1½" CASE STYLE		2½" CASE STYLE	
RANGE		CAT. NO.	PRICE	CAT. NO.	PRICE
DC VOLTMETERS Self-Shielding Meter Movement		MODEL 1921		MODEL 1622	
0-10	5000 Ω/volt	18000•	\$18.45	18006•	\$19.50
0-15	5000 Ω/volt	18001•	18.45	18007•	19.50
0-25	5000 Ω/volt	18002•	18.45	18008•	19.50
0-50	5000 Ω/volt	18003•	18.45	18009•	19.50
0-150	5000 Ω/volt	18004•	18.45	18010•	19.50
0-500	—	—	—	18011•	19.65

<b>DC MILLIAMMETERS</b> Self-Shielding Meter Movement		<b>MODEL 1921</b>		<b>MODEL 1622</b>	
0-1	18	18012•	\$18.15	18019•	\$19.35
0-5	2	18013•	18.15	18020•	19.35
0-10	5	18014•	18.15	18021•	19.35
0-25	2	18015•	18.90	18022•	20.10
0-50	1	18016•	18.90	18023•	20.10
0-100	.5	18017•	18.90	18024•	20.10
0-500	.1	18018•	18.90	18025•	20.10

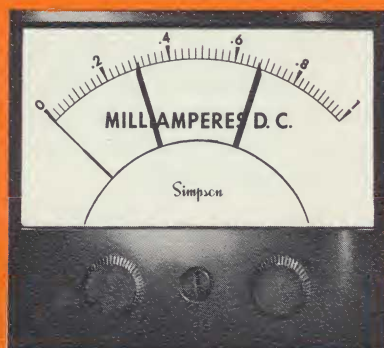
<b>DC MILLIVOLTMETERS</b> Self-Shielding Meter Movement		<b>MODEL 1921</b>		<b>MODEL 1622</b>	
0-50	400 Ω/volt	18028•	\$19.20	18029•	\$20.40

<b>DC MICROAMMETERS</b> Self-Shielding Meter Movement		<b>MODEL 1921</b>		<b>MODEL 1622</b>	
0-25	7760	18030•	\$23.70	18035•	\$24.75
0-50	2020	18031•	23.40	18036•	24.45
0-100	1060	18032•	21.00	18037•	22.20
0-200	310	18033•	19.20	18038•	20.40
0-500	63	18034•	18.75	18039•	19.80

<b>AC VOLTMETERS</b> Rectifier Type Self-Shielding Meter Movement		<b>MODEL 1941</b>		<b>MODEL 1642</b>	
0-150	5000 Ω/volt	18042•	\$22.95	18043•	\$24.15



# METER RELAYS contactless 4½"



Contactless Type  
4½" Model 3324XA, 3344XA

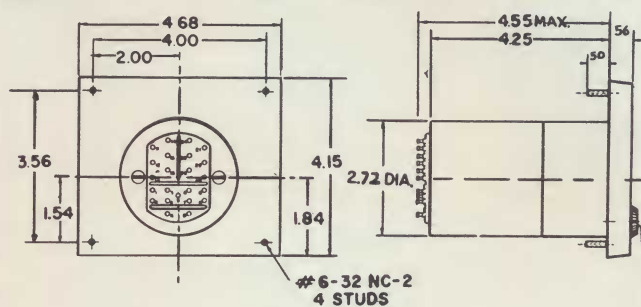
## CONTACTLESS TYPE—MODEL 3324XA

Contactless types are intended for those applications in which utmost reliability of operation on small differential or small power is desired. Set points are adjusted thru external, front adjusted gear drive. Set point is indicated by separate lance pointers. Sensing is accomplished thru an infinite life lamp and photo-conductors. A solid state switching circuit and D.P.D.T. slave relay are provided (internally) for each control point. Slave relays will switch 10 amperes @ 115 Volts A.C.

## Single or Dual Control

### Model 3324XA

for alarm control or limit applications  
on equipment designed for unattended applications



RELAY ADJUST BUTTON  
.75 DIA. PROTRUDING .18 ABOVE BEZEL, LOCATED .97 BELOW METER CENTER LINE, AND .98 LEFT AND/OR RIGHT OF THE METER CENTER LINE AS APPLICABLE.

## SPECIFICATIONS

**CALIBRATION ACCURACY:**  $\pm 2\%$  of Full Scale.

**CONTROL POINT ADJUSTMENT:** Control points are externally adjustable over 95% of the scale arc. Control point indication is within 2% of actual switching.

**CONTROL POINT DIFFERENTIAL:** Difference between "on" and "off" is within .5% of Full Scale.

**POWER REQUIREMENTS:** 115 Volts A.C. 50-500 CPS. D.C. power required for sensing and switching is provided by the external power module furnished with the relay.

**OUTPUT:** D.P.D.T. relay contacts for each control point. Contacts rated @ 10 amperes, 115 A.C. resistive.

**METER INDICATION:** Continuous, unaffected by control point setting.

**CONTROL CIRCUITRY:** Fail-safe. Both slave relays "open" in event of power failure.

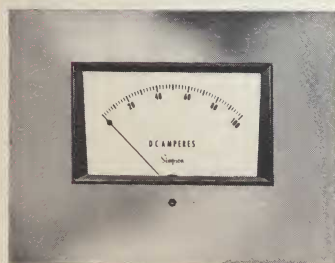
## RANGES AND PRICES

## CONTACTLESS TYPE—MODEL 3324XA

RANGE	SINGLE CONTROL			DOUBLE CONTROL	
	Resist. Approx. Ohms	Cat. No.	Price	Cat. No.	Price
DC MICROAMMETERS					
0-50	3000	16451	\$99.00	16470	\$136.35
0-100	1300	16452	96.15	16471	133.65
0-200	570	16453	96.15	16472	133.50
0-500	220	16454	96.15	16473	133.50
DC MILLIAMMETER					
0-1	80	16455	95.10	16474	132.45
DC MILLIVOLTMETER					
0-50	10	16460	95.40	16480	132.75
AC AMMETER					
0-5† .5 VA Max.		16465	105.00	16485	148.00

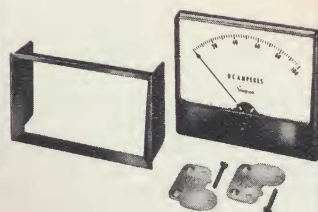
†Self Contained

## NEW 3½" and 4½" BEHIND PANEL BEZELS



WIDE VUE BEZEL KITS

Meter Size	For Models	Part No.	Price
3½"	1327, 1337, 1347, 1357	1253	\$1.65
4½"	1329, 1339, 1349 1359, 1379	1123	\$1.65



## NEW 3½" and 4½" WIDE-VUE MOUNTING BEZEL KITS

For that modern, streamlined appearance—Mounting Bezels, made for wide-vue panel meters and interchangeable with flush and recess type meters of many popular styles. Designed for behind panel mounting on material thickness of 1/8" to 3/16". Groove and flange style construction. Each bezel of die cast metal has an attractive black enamel satin finish and is supplied with mounting hardware and template.

Bezel Mount Kit consists of bezel brackets and screws and installation instructions.







# **"RUGGED SEAL"** **3½", 4½", 4" x 6"**

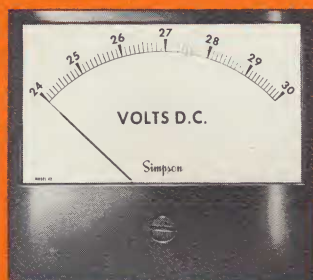
- SQUARE
  - RECTANGULAR
- ## **STOCK METERS**

### **NEW SIMPSON "RUGGED SEAL" PANEL METERS**

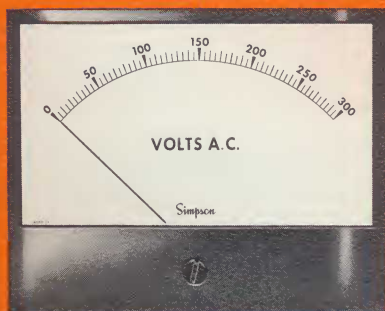
This new line of metal cased panel instruments is ideal for use in field test equipment or wherever rigorous environmental conditions are encountered. They are completely sealed, commercially ruggedized, glass window, metal cased and shielded, not affected by steel panel mounting.



3½" Models 3323, 3383

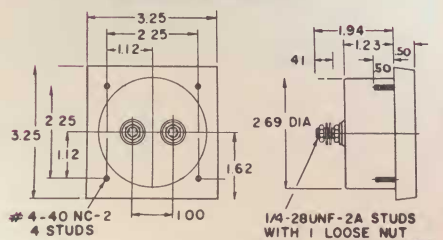


4½" Models 3324, 3384



4" x 6" Models 3326, 3386

### **DIMENSIONS**



3½" Models 3323, 3343

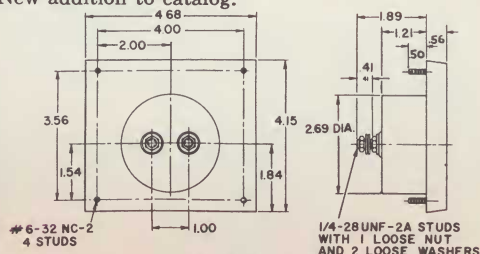
### **SPECIFICATIONS**

SIZE	MODEL NO.	ACCURACY	SCALE LENGTH
3½"	3323, 3343*	DC METERS: ± 2% F. S. AC METERS: ± 3% F. S. @ 25°C. and 60 cy. Sine Wave	2.9" (74 mm)
4½"	3324, 3344*		3.9" (101 mm)
4" x 6"	3326, 3346*		4.7" (120 mm)

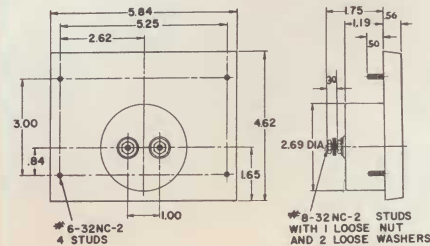
\*All AC Meters are rectifier type. AC Voltmeters, Milliammeters and Microammeters maintain their rated accuracy over a range of 25 through 2500 cps. AC Ammeters maintain their accuracy over a range of 55 through 125 cps.

APPROX. RESISTANCE (Ohms)		3½" CASE STYLE CAT. NO. PRICE		4½" CASE STYLE CAT. NO. PRICE		4" x 6" CASE STYLE CAT. NO. PRICE	
DC VOLTMETERS		MODEL 3323		MODEL 3324		MODEL 3326	
Shielded Case not affected by magnetic Mounting							
0-1.5	1000 OHMS  PER VOLT	16000	\$18.90	16095	\$20.55	16190	\$22.50
0-10		16005	18.90	16100	20.55	16195	22.50
0-15		16010	18.90	16105	20.55	16200	22.50
0-25		16015	18.90	16110	20.55	16205	22.50
0-50		16020	18.90	16115	20.55	16210	22.50
0-100		16025	18.90	16120	20.55	16215	22.50
0-500		16030	18.90	16125	20.55	16220	22.50
DC MILLIVOLTMETERS		MODEL 3323		MODEL 3324		MODEL 3326	
Shielded Case not affected by magnetic Mounting							
0-50	10	16062	19.00	16157	21.00	16252	23.00
DC AMMETERS		MODEL 3323		MODEL 3324		MODEL 3326	
Shielded Case not affected by magnetic Mounting							
0-5	INTERNAL SHUNT 75 MV MAX.	16035	\$19.20	16130	\$20.85	16225	\$23.10
0-10		16040	19.20	16135	20.85	16230	23.10
DC MILLIAMMETERS		MODEL 3323		MODEL 3324		MODEL 3326	
Shielded Case not affected by magnetic Mounting							
0-1	80 Ω	16045	\$18.15	16140	\$19.80	16235	\$22.05
0-100	.5 Ω	16050	19.50	16145	20.85	16240	23.10
DC MICROAMMETERS		MODEL 3323		MODEL 3324		MODEL 3326	
Shielded Case not affected by magnetic Mounting							
0-50	3000 Ω	16055	\$24.45	16150	\$26.10	16245	\$28.65
0-100	1300 Ω	16060	22.20	16155	23.85	16250	26.40
AC VOLTMETERS (Rectifier Type)		MODEL 3343		MODEL 3344		MODEL 3346	
Shielded Case not affected by magnetic Mounting							
0-150	1000 OHMS	16065	\$22.80	16160	\$24.15	16255	\$26.40
0-300	PER VOLT	16070	22.80	16165	24.15	16260	26.40
AC AMMETERS (Rectifier Type)		MODEL 3343		MODEL 3344		MODEL 3346	
Shielded Case not affected by magnetic Mounting							
0-1	Internal Transformer Burden 0.5 VA Maximum	16075	\$28.50	16170	\$29.70	16265	\$32.10
0-5		16080	28.50	16175	29.70	16270	32.10
AC MILLIAMMETERS (Rectifier Type)		MODEL 3343		MODEL 3344		MODEL 3346	
Shielded Case not affected by magnetic Mounting							
0-1	600 Ω	16085	\$22.50	16180	\$23.85	16275	\$25.80
AC MICROAMMETERS (Rectifier Type)		MODEL 3343		MODEL 3344		MODEL 3346	
Shielded Case not affected by magnetic Mounting							
0-100	4000 Ω	16090	\$23.85	16185	\$24.75	16280	\$27.15

•New addition to catalog.



4½" Models 3324, 3344

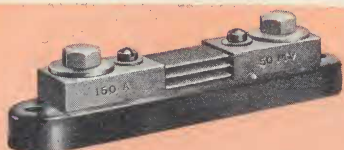


4" x 6" Models 3326, 3346

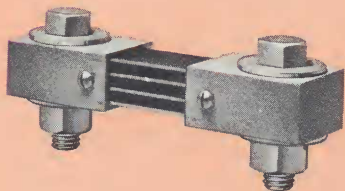


# Simpson

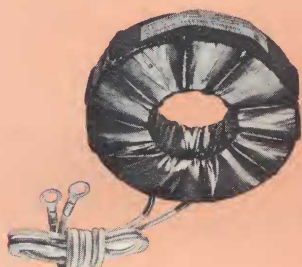
## Shunts • Current Transformers • External Multipliers



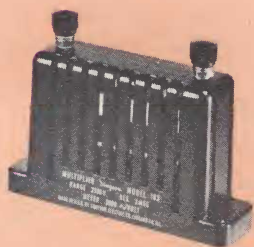
BAKELITE BASE IS SUPPLIED  
UP TO 200 AMPERES



SWITCHBOARD TYPE  
100 THROUGH 7000 AMPES



CURRENT  
TRANSFORMER



EXTERNAL MULTIPLIER  
MODEL 183  
For Usage  
See Voltmeter Footnotes

### EXTERNAL PORTABLE AND SWITCHBOARD SHUNTS— FOR USE WITH DC AMMETERS

These shunts are adjusted for a 50 millivolt drop for use with switchboard and panel ammeters where external shunts are required. Portable shunts are bakelite base and supplied up to 200 amperes. (Prices shown include 5' leads.) Accuracy  $\pm 1\%$ .

#### PORTABLE SHUNTS

Amps.	Part No.	Price
1	6700	\$8.70
5	6703	8.70
10	6704	8.70
15	6705	8.70
25	6707	8.70
30	6708	8.70
50	6709	8.70
75	6711	8.70
100	6713	8.70
150	6714	8.70
200	6715	8.70

#### SWITCHBOARD SHUNTS

Amps.	Part No.	Price
100	6500	\$8.70
150	6503	9.30
200	6504	9.30
250	6505	9.30
300	6506	9.30
400	6507	11.40
500	6508	13.50
600	6509	16.05
750	6510	20.55
800	6511	21.75
1000	6512	26.40
1200	6513	31.55
1500	6514	39.30
2000	6515	44.25
2500	6516	55.35
3000	6517	65.70
3500	6518	91.80
4000	6519	110.25
4500	6520	120.85
5000	6521	135.75
6000	6522	149.85
7000	6523	180.00

### CURRENT TRANSFORMERS— FOR USE WITH AC AMMETERS

These current transformers are of the inserted one turn primary type for use with switchboard and panel ammeters where external transformers are required.

AMPERE RANGES Primary	Secondary	Part No.	Price
50	5	1293	\$22.20
75	5	1306	16.35
100	5	1297	13.50
150	5	1298	12.00
200	5	1299	12.00
250	5	1313	13.50
300	5	1300	13.50
400	5	1305	15.00
500	5	1301	16.35
600	5	2303	16.35
750	5	2459	19.20
1000	5	2304	20.70

### MODEL 183 MULTIPLIER SERIES

Simpson External Multipliers are available for immediate delivery from your local distributor in the ranges listed below. Other intermediate ranges are available on special order: DC Volts to 5000; AC Volts to 1000. Send your specifications for a quotation.

#### AC VOLTS—166 Ohms/Volt

Range	Multiplier		Meter Volt. Drop	Part No.	Price
	Resistance Ohms	Volt. Drop			
0-500	58,333	350	150	8562	\$6.10
0-600	75,000	450	150	8563	7.00
0-750	100,000	600	150	8564	7.75
0-1000	141,666	850	150	8565	9.25

#### DC VOLTS—2000 Ohms/Volt

Range	Multiplier Resistance Megohms	Meter Sensitivity DC UA	Part No.	Price
0-500	1	500	8552	\$5.05
0-750	1.5	500	8553	5.35
0-1000	2	500	8554	5.35
0-1250	2.5	500	8555	5.35
0-1500	3	500	8556	5.65
0-2000	4	500	8557	5.65
0-2500	5	500	8558	5.80
0-3000	6	500	8559	5.80
0-4000	8	500	8560	6.25
0-5000	10	500	8561	6.85

## SIMPSON TEST EQUIPMENT

Add-a-tester Adapters Expands the famous 260 or 270 VOM as the need arises.



Handiscope  
Model 466



100,000 ohms per volt  
AC-DC Volt-  
Ohm-Microammeter  
Model 269

WORLD'S LARGEST  
MANUFACTURER OF  
ELECTRONIC  
TEST EQUIPMENT  
Write for bulletin 2072

Printed in U.S.A.

# Simpson

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LAC DU FLAMBEAU  
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AURORA PLANT



MERCER PLANT



# GLOSSARY OF TERMS

## INSTRUMENTS THAT STAY ACCURATE

The information in this section is intended to give a basic understanding of the terms commonly used in the Electrical Indicating Instrument Industry. Some of the information, as noted\*, has been reproduced with permission from the American Standards Association.

### ACCURACY TOLERANCE

The measure of a meter's ability to provide indications corresponding to the absolute value of electrical energy applied.

Accuracy is customarily expressed as a percentage of full scale value (see Note 1). To determine the degree of accuracy of a meter at a given point, the rated full scale value, the actual value of energy applied and the value indicated by the meter must be known.

Note 1. Full scale value in meters with zero at a point other than end scale is the arithmetic sum of the two end scale values.

The formula for expression of a meter's accuracy, in percent of full scale, at a point is:

$$\text{Accuracy} = \frac{I - A}{\text{F.S.}} \times 100$$

I = Value Indicated by Meter

A = Actual Value of energy applied to meter

F.S. = Rated full scale value of meter

Note: Disregard the sign in determining the degree of accuracy.

Examples: A 0-5 milliamp meter has a current of 4.30 milliamps applied to it. The meter reads 4.25 milliamps. The meter accuracy at that point is:

$$1. \% \text{ Accuracy} = \frac{4.25 - 4.30}{5.00} \times 100$$

$$2. \% \text{ Accuracy} = \frac{.05}{5.00} \times 100$$

$$3. \% \text{ Accuracy} = .01 \times 100$$

$$4. \text{ Accuracy} = 1.0\%$$

A 5-0-10 voltmeter has 7.0 volts applied to it. The meter reads 7.2 volts. The meter accuracy at that point is:

$$1. \% \text{ Accuracy} = \frac{7.2 - 7.0}{5 + 10} \times 100$$

$$2. \% \text{ Accuracy} = \frac{.2}{15} \times 100$$

$$3. \% \text{ Accuracy} = .0133 \times 100$$

$$4. \text{ Accuracy} = 1.33\%$$

### AIR DAMPED

A construction utilizing an air vane to achieve movement damping. This vane is usually housed in a closed chamber to increase the damping action.

### AVERAGE VOLTAGE

The sum of the instantaneous voltages in a half cycle wave shape divided by the number of instantaneous voltages. In a sine wave, the average voltage is equal to 0.637 times the peak voltage.

### BALANCE (Position Influence)\*

Position influence is the change in the indication of an instrument which is caused solely by a position departure from the normal operating position.

### DAMPING

Damping of an instrument is the term applied to its performance to denote the manner in which the pointer settles to its steady indication after a change in the value of the measured quantity.

Two general classes of damped motion are distinguished as follows:

- (a) Periodic, in which the pointer oscillates about the final position before coming to rest.
- (b) Aperiodic, in which the pointer comes to rest without overshooting the rest position. Sometimes referred to as overdamping.

The point of change between periodic and aperiodic damping is called critical damping.

Note: An instrument is considered to be critically damped when overshoot is present but does not exceed an amount equal to one half the rated accuracy of the instruments.

### DAMPING FACTOR

The ratio of the steady deflection to the difference between maximum momentary deflection and steady deflection. The deflections are produced by sudden application of a constant value of electrical energy and are measured in angular degrees. Unless otherwise specified, end scale deflection is used as maximum momentary deflection. To determine the damping factor, the total angular deflection from zero to end scale must be known.† These angles can then be substituted in the formula:

$$\text{Damping Factor} = \frac{D_s}{D_m - D_s}$$

Where:  $D_s$  = Steady state deflection in angular degrees

$D_m$  = End scale deflection in angular degrees

†In linear scale meters, very close approximations can be made using the scale graduations to determine the deflection angles.

Example: A 0-100 D.C. voltmeter has a current suddenly applied that causes a momentary end scale deflection. After the pointer settles to a rest position, the meter reads 82 volts. The damping factor is:

$$1. \text{ DF} = \frac{82}{100 - 82}$$

$$2. \text{ DF} = \frac{82}{18}$$

$$3. \text{ DF} = 4.5$$

### DECIBEL OR D.B.

A decibel is a logarithmic unit for the expression of the ratios of two amounts of power. The number of decibels denoting such a ratio is equal to 10 times the  $\text{LOG}_{10}$  of the ratio.

$$N = 10 \text{ LOG}_{10} \frac{P_1}{P_2}$$

N = Number of Decibels

$P_1$  = Initial Power Level

$P_2$  = New Power Level

### END SCALE VALUE\*

The end scale value of an instrument is the value of the actuating electrical quantity that corresponds to end scale indication. When zero is not at the end or at the electrical center of the scale, the higher value is taken.

Note: Certain instruments such as power-factor meters, ohmmeters, etc. are necessarily excepted from this definition.

### EXPANDED SCALE METER

A meter in which the ratio of deflection per unit of applied energy becomes greater as the energy approaches a specified value.

### FREQUENCY INFLUENCE†

The change in indication due solely to a frequency change of the applied energy from a specified frequency.

Frequency influence is usually expressed as a percentage change of full scale value\*\* for a specified frequency change.

†Does not apply to frequency meters.

\*\*The full-scale value is equal to the largest value of the actuating electrical quantity which can be indicated on the scale or, in the case of instruments having their zero between the ends of the scale, the full scale value is the arithmetic sum of the values of the actuating electrical quantity corresponding to the two ends of the scale.

\*This material is reproduced from the American Standard Requirements for Electrical Indicating Instruments, C39.1—1959, copyrighted by ASA, copies of which may be purchased from the American Standards Association at 10 East 40th Street, New York 16, New York.



## FRICITION

The difference between tapped and untapped meter readings due to the combination of pivot friction and pivot roll. Friction is usually checked by making a substantial change in the applied energy (5-10%) at a sufficiently slow rate so that no overshoot occurs. The meter indication is then noted and, maintaining the same energy level, the meter is tapped. The difference between the two indications is the friction error. It is customary to express the error as a percentage of full scale value.

Since friction is influenced by meter position, the position(s) in which the observation is made must be stated.

## FULL SCALE VALUE\*

The full scale value is equal to the largest value of the actuating electrical quantity which can be indicated on the scale or, in the case of instruments having their zero between the ends of the scale, the full-scale value is the arithmetic sum of the values of the actuating electrical quantity corresponding to the two ends of the scale.

*Note:* Certain instruments such as power-factor meters, ohmmeters, etc. are necessarily excepted from this definition.

## IMPEDANCE

The apparent resistance, expressed in ohms, offered by an alternating current circuit to the passage of electrical energy.

Since frequency is one of the factors affecting impedance, the frequency of applied energy must be specified.

## LOGARITHMIC SCALE METER

A meter having deflections proportional to the logarithms of the applied energies.

## MAGNETIC INFLUENCE\*

The magnetic-platform influence is the change in indication caused solely by the presence of a magnetic platform on which the instrument is placed.

*Note:* For the purposes of this standard, the influence is determined as the percentage change in indication when the instrument is placed in its normal operating position on a demagnetized steel plate, extending at least 6 inches beyond the instrument on all sides, and at least 0.25 inch thick as compared with its indication when isolated from extraneous magnetic material.

## MAGNETICALLY DAMPED

Meters in which the damping is achieved by moving a metal vane through a magnetic field. This motion induces currents in the vane which sets up magnetic fields opposing those of the stationary magnets thus tending to bring the pointer to rest. This type of damping is found in many quality moving iron and dynamometer type instruments.

## METER RESISTANCE

Resistance of the meter as measured at the terminals at a given reference temperature.

When applied to rectifier type meters, the frequency and wave shape of the applied energy, as well as the indicated value at which the measurement is to be made, must be specified.

Normally, the resistance of a rectifier type meter is measured by the voltage doubling method, outlined below:

The meter is energized to the chosen scale position at which the resistance is to be measured. The voltage required to achieve this deflection is noted. A non-inductive, variable resistor is then connected in series with the meter and a voltage twice that of the previously noted voltage is applied. The resistor is then adjusted until the meter again deflects to the original scale position. The meter resistance is then considered to be equal to the value of the adjusted resistor.

## OVERSHOOT\*

Overshoot is the ratio of the overtravel of the indicator beyond a new steady deflection to the change in steady deflection when a new constant value of the measured quantity is suddenly applied. The overtravel and deflection

are determined in angular measure and the overshoot is usually expressed as a percentage.

*Note 1.* Since, in some instruments, the ratio depends on the magnitude of the deflection, a value corresponding to an initial deflection from zero to end scale is used in determining the overshoot for rating purposes.

## PEAK VOLTAGE

The maximum value present in a varying or alternating voltage. This value may be either positive or negative.

## POWER CONSUMPTION

The power necessary to produce end scale deflection of the meter. Power consumption may be expressed in wattage, resistance, voltage, volt-amperes, impedance or current.

## POWER FACTOR

The cosine of the phase angle between an alternating voltage and current in an electrical circuit.

## RECTIFIER TYPE INSTRUMENT

A combination of an instrument sensitive to direct current and a rectifying means whereby alternating current (or voltage) may be measured.

## REPEATABILITY

The measure of a meter's ability to provide repeat readings with the application of a given energy. It is customary to express repeatability as a percentage of full scale value\*.

\*See definition of full scale value and end scale value in this section.

Repeatability at a point is usually measured by increasing the applied energy to a given value. The increase is made at a sufficiently slow rate so that no overshoot occurs. The meter deflection is then noted. The energy is then increased at least 10% and then slowly reduced until the given value is again reached. The new meter deflection is noted. The difference in the two deflections is the repeatability error of the unit at the given value.

A formula for determining a meter's repeatability at a given point is:

$$\text{Repeatability} = \frac{D_2 - D_1}{D_{FS}} \times 100$$

$D_1$  = Deflection, in angular degrees, noted after increasing energy

$D_2$  = Deflection, in angular degrees, noted after decreasing energy

$D_{FS}$  = Full scale deflection in angular degrees

*Example:* A 90 degree meter has an energy slowly applied. When the chosen energy level is reached, a deflection of 68 degrees is observed. After increasing the energy by 10%, it is slowly reduced to the originally chosen level. A new deflection of 68.5 degrees is observed. The repeatability of the meter at the chosen value is:

$$1. \% \text{ Repeatability} = \frac{68.5 - 68.0}{90} \times 100$$

$$2. \% \text{ Repeatability} = \frac{.5}{90} \times 100$$

$$3. \% \text{ Repeatability} = \frac{50}{90}$$

$$4. \text{ Repeatability} = .555\%$$

## RESPONSE TIME\*

The response time is the time required after an abrupt change has occurred in the measured quantity to a new constant value until the pointer, or indicating means, has first come to apparent rest in its new position.

*Note 1.* Since in some instruments, the response time depends on the magnitude of the deflection, a value corresponding to an initial deflection from zero scale to end scale is used in determining the response time for rating purposes.



# INSTRUMENTS THAT STAY ACCURATE

**Note 2.** The pointer is at apparent rest when it remains within a range on either side of its final position equal to one half the accuracy rating, when determined as specified in *Note 1*.

## R.M.S. VOLTAGE

The effective value of a varying or alternating voltage. The effective value is that value which would produce the same power loss as if a continuous voltage were applied to a pure resistance. In sine wave voltages, the R.M.S. voltage is equal to 0.707 times the peak voltage.

## SCALE LENGTH

The length of the imaginary arc described by the tip of the pointer or other indicating means used. If the pointer tip extends beyond the scale markings, the pointer shall be considered to end at the outer edge of the shortest scale mark. On multi scale instruments, the scale length shall be considered to be equal to the length of the longest scale.

## SELF-CONTAINED INSTRUMENT

A self-contained instrument is one in which no accessory items are required to perform its intended functions(s)\*. If not specified, a manufacturer may optionally supply either a self contained meter or one with external accessories.

\*If a meter is specified "0-500 D.C. Microamperes, with scale reading 0-1000 Volts," a 500 ua meter without an internal resistor would be considered self-contained since the established intent is for the meter to operate as a microammeter.

If the specification had read, "0-1000 D.C. Volt, 2000 ohms per volt," the intent is for operation as a voltmeter. A meter having an internal resistor would be necessary to meet the specification. A 500 micro-ampere meter without an internal resistor would not be considered self-contained.

## SQUARE LAW SCALE METER

A meter in which the deflection is proportional to the square of the applied energies.

## SYMMETRY (Applies only to off-set zero meters)

The measure of a meter's ability to provide corresponding indications on each side of zero when the polarity of the applied energy is reversed.

Symmetry error is customarily expressed as a percentage of actual full scale value.\*

\*See definition of full scale value in this section.

To determine the symmetry error at a point, the actual full scale energy, the actual energy necessary to cause deflection to the selected point and the actual energy necessary to cause deflection to the corresponding point on the other side of zero must be known.

The symmetry error for a selected point or points can be determined by use of the formula:

$$\% \text{ Symmetry error} = \frac{I_x - I_y}{I_{FS}} \times 100$$

**Note:** Disregard the sign in determining the degree of symmetry.

$I_x$  = Actual energy for deflection to a selected point.

$I_y$  = Actual energy for deflection to the corresponding indication.

$I_{FS}$  = Actual energy for full scale deflection.

**Example:** A 10-0-10 Voltmeter requires 10.3-0-10.6 Volts for end scale deflections. Application of 8.1 volts is necessary to produce an indication of 8.0 Volts on the right side and 8.25 volts is necessary to cause a corresponding indication on the left side. The symmetry error at the 8.0 Volt point is:

$$1. \% \text{ Symmetry Error} = \frac{8.1 - 8.25}{10.3 + 10.6} \times 100$$

$$2. \% \text{ Symmetry Error} = \frac{.15}{20.9} \times 100$$

$$3. \text{ Symmetry Error} = .72\%$$

The symmetry error at the 10.0 Volt point is:

$$1. \% \text{ Symmetry Error} = \frac{10.3 - 10.6}{10.3 + 10.6} \times 100$$

$$2. \% \text{ Symmetry Error} = \frac{.3}{20.9} \times 100$$

$$3. \text{ Symmetry Error} = 1.44\%$$

## TEMPERATURE INFLUENCE

The change in indication due solely to a change in ambient temperature from a specified reference temperature.

Temperature influence is usually expressed as a percentage of full scale value (see *NOTE 1* under full scale value definition this section) for a specified temperature change.

## TORQUE

A rotational moment applied to the moving system.

At a steady state deflection, the mechanically applied torque is equal and opposite to the electrically developed torque.

Torque is usually expressed in millimeter grams for a given angular deflection.

## TORQUE TO WEIGHT RATIO

The ratio of the mechanical torque at a given angular deflection to the weight of the moving system. The torque may be expressed in millimeter grams at 360 degrees and the weight may be expressed in grams.

This ratio is sometimes arbitrarily referred to as the "figure of merit."

## TRACKING

The ability of an instrument to indicate at the division line being checked when energized by corresponding proportional values of actual end scale excitation, expressed as a percentage of actual end scale value. The tracking error test is performed by initially setting the pointer on zero using the zero corrector, then applying sufficient excitation to produce end scale deflection precisely. The excitation is then reduced to amounts which will produce deflection to the previously selected scale markings. Tap the instrument before setting zero and before each reading.

$$\text{Tracking error } \% = \frac{I_A - I_R}{I_{ES}} \times 100$$

$I_A$  = actual value of excitation required to produce the selected deflection

$I_R$  = the value of excitation for the selected deflection, obtained by proportional values of actual end scale excitation

$I_{ES}$  = actual value of excitation for end scale deflection.

## VOLUME UNIT OR V.U.

A volume unit is a logarithmic unit for the expression of the ratios of two amounts of power. It is equal to a decibel when a reference level of one milliwatt at 600 ohms is used.

## VOLT AMPERE(S)

The product of the R.M.S. voltage applied to a circuit and the R.M.S. current, in amperes, flowing through it.

## WAVEFORM INFLUENCE

The change in indication, caused solely by a change in waveform from a specified waveform, of the applied current and/or voltage.

The waveform influence is usually expressed as a percentage change of full scale value (see *NOTE 1* under full scale value definition this section) for a specified waveform change.

## See your Electronic Distributor for your stock panel meters.



# Simpson 260® The World's Best Selling VOM Family of Instruments



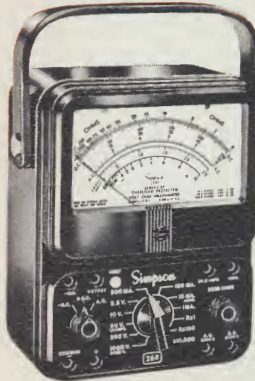
260-5.....\$55.00



260-5M.....\$57.00



Model 261.....\$65.00



260-5P.....\$85.00



270-3.....\$68.00

## CARRYING CASES



Roll Top VOMs  
260-5RT.....\$61.00  
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261-RT.....\$71.00  
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Carrying Case Only  
No. 0805..\$10.00



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## WORLD FAMOUS 260®\* AC/DC Volt-Ohm-Milliammeter

**NEW IMPROVED 260®\* VOLT-OHM-MILLIAMMETER** continues as the World's largest selling VOM. Over a million instruments have been sold. Known for its reliability and ruggedness, the 260 has been continually improved to meet changing market conditions. Among the many built-in features of the 260 are:

- Movement Overload Protection.
- Self shielded Meter Movement.
- Increased linearity and stability.
- Greater repeatability.
- Input protected with an internal 1 amp fuse.
- Individual 260 instruments with special features and accuracies (Identified as 250, 255, 260-5, 5M, 261 and 270).

Complete with test leads No. 7500 and operator's manual.

260-5.....\$55.00  
260-5M (Mirror Scale).....\$57.00

### ROLLTOP VOMs

260-5RT.....\$61.00  
260-5MRT.....\$63.00

## NEW PROTECTED 260-5P\* AC/DC VOLT-OHM-MILLIAMMETER

This Simpson Instrument has built-in Meter and Tester protection approaching 100% which virtually makes this VOM GOOF PROOF. The 260-5P will be of particular value in situations where the instrument may be used by inexperienced people; students, apprentices, and new employees. Technicians, too, will find the instrument ideal for exploring unfamiliar equipment, especially when lack of a schematic diagram poses the hazard of encountering unexpected high voltages when making tests.

### Combined protection not found in any other VOM.

1. Reset button pops out to indicate overload.
2. You cannot reset circuits while overload is present.
3. Protective circuit does not require massive overloads which can cause hidden damage to the instrument.
4. All ranges are protected except those not feasible in a portable instrument —1000 and 5000 volts DC and AC; 10 Amps DC.

The 260-5P has the same ranges and takes the same accessories as the Simpson 260-5 VOM.

Complete with test leads 7500 and operator's manual.

260-5P Protected (GOOF PROOF).....\$85.00  
260-5PRT Protected Roll Top.....\$91.00

## HIGH ACCURACY 261\* and 270\*-3 AC/DC VOLT-OHM-MILLIAMMETERS

For those test VOM applications requiring higher accuracies, Simpson has combined the latest in VOM design with strict manufacturing controls to produce two popular VOM's of the 260 family, 261 and 270 Series 3.

These features include:

1. A new self-shielded annular meter movement.
2. Special calibration circuit that increases accuracy.
3. Diode overload protection. (Prevents movement burnout even on 200,000% overload.
4. Mirror scale with knife edge pointer.
5. Input protected with an internal 1 amp fuse.

Complete with test leads 7500 and operator's manual

Model 261.....\$65.00  
270-3.....\$68.00

### ROLL TOP VOMs

Model 261-RT.....\$71.00  
270-3RT.....\$74.00

WRITE FOR BROCHURE 2074 ON COMPLETE LINE OF TEST EQUIPMENT



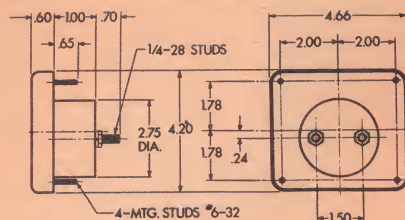
# NEW Simpson

## 4½" PYROMETERS

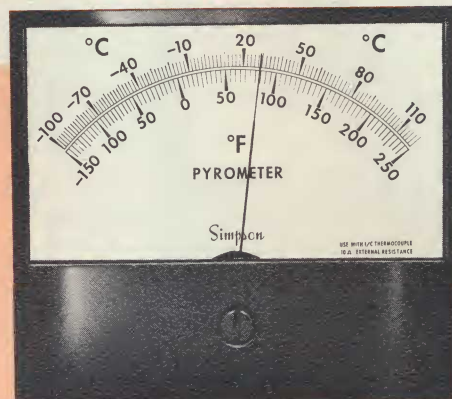
### 2% ACCURACY



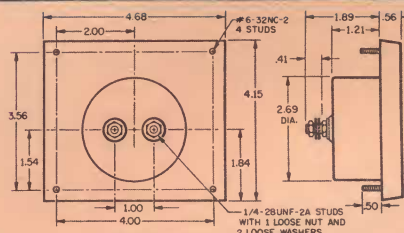
4½"  
Model  
29



4½" Model 29



4½"  
Model  
3324



4½" Model 3324

### PYROMETERS

Available in two versions: Standard bakelite Model 29 and Model 3324. Rugged seal for extreme conditions. Both models are compensated for ambient temperature changes and include copper circuit compensation. All pyrometers are calibrated for use with iron constantan thermocouples which are available as accessory items. Pyrometers —150 to +250°F. are calibrated for 5 ohm thermocouple resistance. All other units are calibrated for 10 ohm thermocouple resistance.

Each pyrometer is furnished with an external adjustable series resistor to permit use of lower resistance thermocouples in the field.

### MODEL 29

Temperature Range	External Resistance Ohms (max.)	Current Sensitivity MA—Approx.	Cat. No.	Price
°F	°C			
-150 to +250	-100 to +120	5Ω	21200	\$33.00
0-300	-20 to +150	10Ω	21202	33.00
0-500	-20 to +260	10Ω	21204	33.00
0-750	-20 to +400	10Ω	21206	33.00

### MODEL 3324

-150 to +250	-100 to +120	5Ω	.20	21201	\$45.00
0-300	-20 to +150	10Ω	.20	21203	45.00
0-500	-20 to +260	10Ω	.35	21205	42.00
0-750	-20 to +400	10Ω	.30	21207	42.00

### THERMOCOUPLES

All thermocouples are iron-constantan, calibrated to exactly 5 or 10 ohms ±1% per table.

Types 21221 and 21224 are iron constantan thermocouple wire in a stainless steel overbraid for rugged service application where flexing or abrasion would cause deterioration of standard thermocouples.

Types 21222 and 21223 are iron-constantan thermocouples with a glass cloth overbraid. These thermocouples are suited for most general purpose use and for permanent mounting in protected sheaths or conduit.

### THERMOCOUPLES

Cat. No.	Type	Resistance	Price
21221	I/C	5Ω	\$12.75
21222	I/C	10Ω	4.50
21223	I/C	10Ω	3.75
21224	I/C	10Ω	23.25

# Simpson

### SIMPSON ELECTRIC COMPANY

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